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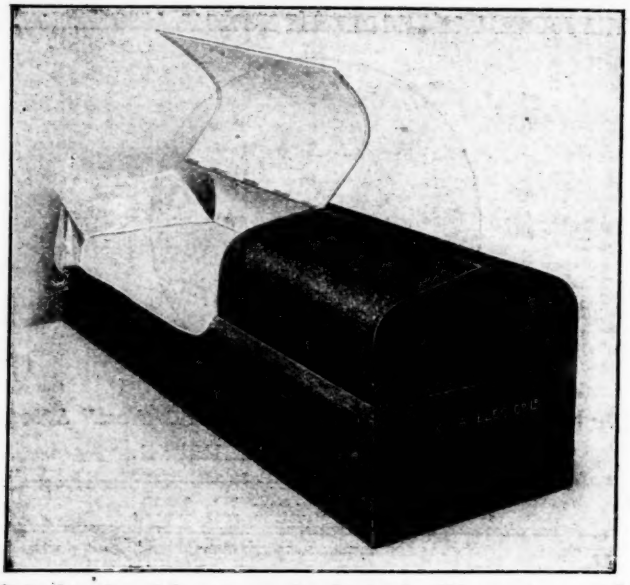

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A British Medical Association Lecture
ON
CEREBRAL TUMOURS.

DELIVERED BEFORE THE SHEFFIELD DIVISION,
NOVEMBER 9TH, 1928,
BY

H. S. SOUTTAR, C.B.E., D.M., M.CH., F.R.C.S.,
SURGEON, LONDON HOSPITAL.

CEREBRAL tumours are unique in the nature and the variety of the symptoms they produce, in the diagnostic problems they present, and in the difficulties which must be overcome by the surgeon who endeavours to approach them. Moreover, they are by no means uncommon in every class of practice, and the general physician, the ophthalmic surgeon, and the aural specialist must all be prepared to meet them; they are more destructive to the patient than any other class of tumour, and they affect personality in a manner which must always arrest our interest and arouse our sympathy. There can be few conditions which make a more widespread appeal.

In the short time at my disposal I propose to glance at cerebral tumours from three points of view—those of the physiologist, the physician, and the surgeon—and to reply briefly to three questions: How do these tumours produce symptoms? What symptoms do they produce? How may they be approached? Naturally a full reply to these questions would involve an elaborate treatise, but even their brief consideration gives some insight into the problems which confront the cerebral surgeon.

THE PRODUCTION OF SYMPTOMS.

The brain differs from all the other organs of the body in the fact that it is enclosed in a rigid case, which entirely modifies the conditions of its circulation, and in the existence within and around it of a secondary and independent circulation, that of the cerebro-spinal fluid. Tumours produce their effects not, as might be supposed, from the pressure they exert on the cerebral tissue, but from the interference they produce with the arterio-venous and the cerebro-spinal circulations. Let us first consider the latter.

The cerebro-spinal fluid is continuously secreted by the choroid plexuses, chiefly in the lateral ventricles, and from these it flows through the foramina of Monro into the third ventricle, from which it is conveyed by the aqueduct of Sylvius to the fourth ventricle, escaping by the foramina of Luschka and Magendie into the subarachnoid space, to be finally discharged by the Pacchionian bodies into the superior longitudinal sinus. A tumour involving the cerebral hemispheres may grow to a huge size without ever affecting this circulation. On the other hand, even a small tumour situated in the interpeduncular space, in the corpora quadrigemina, or at any point below the tentorium, may obstruct the flow, and by producing a secondary hydrocephalus may cause a sharp rise in the intracranial pressure. Such a rise in pressure is associated with general symptoms of the utmost severity, and to this consideration alone is very largely due the contrast in immediate danger between supra- and infra-tentorial tumours. Above the tentorium the general symptoms are mild, and surgery is comparatively easy; below, the conditions are always critical, and surgical intervention will only too often be fatal. By the secondary hydrocephalus the cerebellum is forced down through the foramen magnum till it forms a cone, which may reach as low as the third cervical lamina, crushing beneath it the medulla and the vital centres it contains.

These general indications include the classical symptoms of intracranial pressure, headache, vomiting, and papilloedema. I would insist, however, that only in a secondary sense are these the symptoms of an intracranial tumour, and that every effort should be made to effect a diagnosis before they arise. To wait for them is as unreasonable as to wait for acute intestinal obstruction before diagnosing a tumour of the colon. When, however, these classical symptoms occur they are of great importance, and present very definite characters. The headache is constant, but with severe exacerbations. It is often severe on waking, and it is increased by anything which raises the intracranial pressure, such as exertion, excitement, or even stooping. Vomiting is also marked on rising in the morning; it is independent of food, unaccompanied by abdominal pain, not preceded by nausea, and therefore occurs as a sudden projectile act without warning. Papilloedema may be present in a severe degree before it becomes subjectively obvious to the patient in blurring of vision, but, as a rule, when it is at all marked, a careful examination of the visual fields will show some degree of contraction for small, white objects. Transient attacks of blindness may occur, but persistent diminution of vision means that atrophy has commenced, and complete recovery of visual power is then impossible. The swelling of the disc may be accompanied by retinal haemorrhages, and is generally, though not always, most marked on the side of the lesion.

Among other general symptoms are a certain loss of initiative, mental lassitude and drowsiness, attacks of giddiness, slowing of the pulse, and possibly generalized epileptiform convulsions. A transient diplopia, occurring, as it may, at a very early stage, should be regarded as a symptom of the very first importance. These are all symptoms of high intracranial tension, and as such they may appear apart from cerebral tumours in such conditions as renal disease, severe anaemia, or lead poisoning. The latter are, however, readily excluded.

It is, however, to the local effects produced by a cerebral tumour that we must direct our attention if we are to discover its precise situation. The mere pressure of a tumour on the actual cells of the brain would probably be entirely without result were it not for the interference with the cerebral circulation by which this pressure must in practice be accompanied. It is a clearly established law of cerebral pathology that congestion means irritation, and anaemia paralysis. Now the first effect of the pressure of a tumour must be interference with the venous return and congestion of the region of the brain concerned. If this happens to be the sensorimotor cortex the irritation may show itself in the production of Jacksonian fits, starting in that region of the body which the particular portion of the motor cortex supplies. As the tumour grows and the pressure increases the capillaries will be compressed, anaemia will be produced, and paralysis will replace the irritation; but, in addition to an increase in the actual pressure at any one point, we have an extension of the area involved, so that, in fact, we shall have a spreading area of paralysis surrounded by a zone of irritation. The whole effect is enhanced by the fact that every now and then an acute oedema may arise around the advancing tumour, increasing the general pressure and producing a dangerous exacerbation of the symptoms, sometimes the abrupt prelude of a fatal termination.

TUMOURS OF THE ROLANDIC AREA.

The most important portion of the cerebral cortex, from the point of view of intracranial tumours, is undoubtedly that which lies in front of the fissure of Rolando, the precentral or ascending convolution. It differs histologically from any other portion of the cortex, since here alone are found clusters of giant pyramidal cells of Betz, from which arise the great pyramidal tracts. It is essentially the final area through which the volitional control of the brain is conveyed to the muscles. It originates nothing, but it transmits movement formulae for the execution of various skilled acts, the formulae being prepared by the synthetic action of other centres—visual, auditory, sensory, or psychic. It has, in addition, the important function of inhibiting muscular tone, the muscles being thus held ready for instant response to the transmitted formulae. Its destruction, therefore, leads to a loss of volitional control and to an increase in muscular tone which hampers useful action.

In this area the different portions of the body are represented by centres arranged in a very precise manner (Fig. 1). At the extreme upper end commence the centres

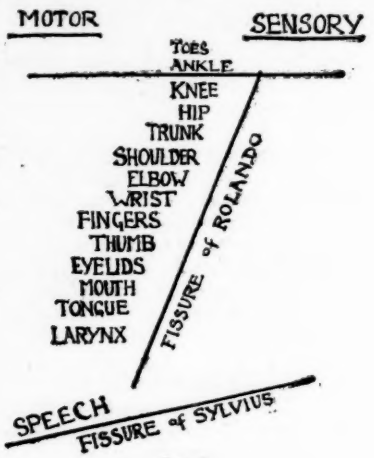

FIG. 1.

for the leg, the toes and ankle being represented actually on the mesial surface of the hemisphere. Passing downwards, the knee and hip are followed by the trunk, which lies just opposite the superior genu of the fissure. Below this come in order the shoulder, elbow, wrist, fingers, and thumb. The tongue and larynx follow. Just in front of the hand area is a special area for the control of the conjugate movements of the eyes and rotation of the head to the opposite side.

When a tumour affects this region it gives rise to symptoms, as we have already explained, by the interference with the circulation which it produces. When the pressure is slight and only congestion results, irritation is produced; when it is more severe we have anaemia and paralysis; and inasmuch as the tumour is steadily advancing there will usually be a zone of paralysis surrounded by a zone of irritation. The phenomena of irritation in this region have a very characteristic form, first described by Hughlings Jackson, and universally known as Jacksonian fits. The characteristics of these are that they start in a precise region of the body, always the same, and that they spread to other regions in a definite order, corresponding exactly to that in which the centres are arranged in the cortex. They may be preceded by twitching or tingling in the part, and they commence with a stage of tonic spasm, passing into a series of clonic jerks as the centres become exhausted. Consciousness is only lost if the convulsions become generalized. The fits may occur at any interval, from months down to minutes, and a very important feature is that they are always followed by definite weakness in the portion of the body in which the fit starts.

Cortical paralysis has equally striking features. It is essentially a paralysis of movements, and not of individual muscles, or even muscle groups. Stimulation of the centres in the motor cortex gives rise to definite movements, such as flexion of the elbow or abduction of the arm, in each of which certain muscles contract with nicely balanced force, whilst other antagonistic muscles are relaxed in suitable degree. Destruction of the centre removes from the individual the power of initiating the movement concerned, and at the same time the removal of cortical inhibition and control compels the limb to take up a characteristic attitude. Thus, in a complete hemiplegia, where the whole cortical control is removed, the arm will take up a position of adduction, with flexed wrist and fingers. The leg, on the other hand, will be adducted and extended at the hip, and extended at the knee and the ankle. In partial lesions other attitudes may be adopted. In all cases the paralysis will be accompanied by an increase in tone in the muscles and by an increase in the deep reflexes.

The growth of a tumour pressing on the motor area will therefore give rise to a characteristic clinical picture—Jacksonian fits, followed by weakness in the region of origin, and a steadily advancing paralysis. The latter spreads, as before, in accordance with the arrangement of the cortical centres, and thus presents certain peculiar features.

As an example of the mode of spread I may cite a case where the fits always started with twitching of the left thumb. After a few moments the tonic stage came on, a tonic spasm spreading successively to the fingers, wrist, and arm, and simultaneously to the left side of the face and tongue, whilst at the same time the head and eyes were forcibly turned to the left. The spasm terminated in a series of clonic jerks, and only occasionally did the fits spread to the leg, when they became general, with loss of consciousness.

Immediately in front of the precentral area lies the intermediate precentral area, in which it is probable that motion formulae are constructed and retained, and that the memory for skilled acts resides. Upon its integrity depends the accurate performance of actions which we have learnt by practice to execute with facility, whilst its destruction, especially on the left side, may abolish the possibility of such acts, although there may be no paralysis in the ordinary sense. Such a condition is known as motor apraxia. By far the most important example is in lesions of the posterior extremity of the left inferior frontal convolution in right-handed individuals, the area of Broca, in which is stored the memory of those movements involved in speech. The loss of this area makes voluntary speech impossible, although the individual may know exactly the words he wishes to use, and may be able to look them up in a dictionary. In the involvement of the area by a tumour these symptoms are diagnostic, but the area is of further importance to the surgeon, since, whenever possible, he will avoid its neighbourhood, and will plan his explorations so as to leave it intact.

Behind the fissure of Rolando lies the post-central convolution, where are grouped centres for sensory reception, roughly corresponding in arrangement with the motor centres we have just described. Injury to this area may produce in the corresponding region of the body a loss of postural sense, of localization, of touch, or of the perception of the degrees of heat and cold, and it is of diagnostic import that this loss is irregular in distribution and in the extent to which each element of sensation is affected. Irritation produces a sensation of tingling in the corresponding area, and as these sensory centres are in such close proximity to the motor centres it follows that a tumour is likely to involve both, and that tingling in a limb may be the definite precursor of a Jacksonian convulsion.

It will thus be seen that on the lateral aspect of the brain there exists a wide area interference with which produces characteristic symptoms. A tumour in this region may therefore be located in many cases with the most minute precision, but the area is of almost equal importance in the diagnosis of tumours which reach it from other regions of the brain. Thus, the first indication of a frontal tumour may be given from involvement of the motor area in its backward extension, whilst tumours of the occipital and temporal lobes may remain equally obscure until the sensorimotor cortex is affected. We have, however, another means at our disposal for the localization of cerebral tumours—in the effects which they produce upon the visual tracts—and these we must now consider.

TUMOURS INVOLVING THE VISUAL TRACTS.

The tumours of which I have so far spoken have as their chief characteristic some interference with motion. Another group, not perhaps so common, but even more fascinating in the problems it furnishes for diagnosis, interferes with vision. Visual impressions starting in the retina pass through the whole length of the brain to the occipital lobe behind. The fibres of the optic nerves decussate in the optic chiasma in such a way that the visual impressions from the visual fields on each side of a median plane are transmitted entirely to the opposite side. Through the optic tracts impulses from the contralateral fields are carried back to the external geniculate body and the pulvinar of the thalamus. From the former run tracts connecting it with the mid-brain and with the centres which control the movements of the eyes. From the latter spread out the optic radiations, looping round the descend-

ing horn of the lateral ventricle to reach their destination in the cortex of the occipital lobe. It is to this final portion of the optic path that I would for a moment direct your attention.

The optic radiations are so arranged that the upper fibres receive impulses from the upper portions of the retinae, the lower from the lower. This order they maintain right up to the point when they terminate in the cortex above and below the calcarine fissure on the mesial aspect of the occipital lobe. In relation to tumours of the occipital lobe itself this distinction is not of importance, for, as a rule, the whole visual area is involved, with resulting disturbances of vision in the contralateral visual field. These disturbances may be of two kinds—irritative or paralytic. The former are more likely to be produced by cortical tumours, and appear as flashes of light, often coloured and suggesting fireworks. Probably the fortification lines of migraine are due to vascular disturbance in this region. Deep tumours, on the other hand, produce a gradual contraction of the visual field on the opposite side, best shown by testing with small objects, white or coloured. The superficial tumours again tend to spread forwards over the cortex and to involve the lower sensorimotor areas, producing numbness in the opposite face or hand. The deep tumours tend to involve the posterior part of the internal capsule, producing sensory changes in the opposite half of the body and paresis in the opposite leg.

But to the optic radiations themselves we owe a syndrome as beautiful as any in cerebral pathology, and in the hands of Cushing they have supplied the key to what was one of the most obscure regions of the brain (Fig. 2). These

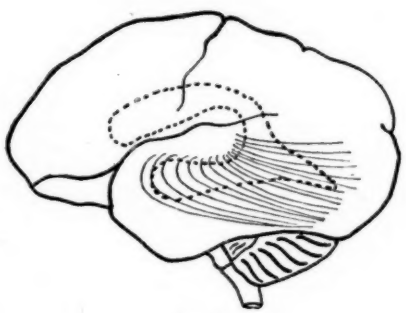

FIG. 2.

radiations as they leave the optic thalamus wind forwards, outwards, and finally backwards round the descending horn of the lateral ventricle, occupying as they do so the posterior part of the temporal lobe. Their arrangement in upper and lower groups connected with the upper and lower portions of the retinae has already been noted. A tumour, then, in the lower part of the right temporal lobe will involve those fibres which carry impulses from the opposite upper visual field, and the left upper quadrant will be blind, and we have the condition known as a left upper quadrantic homonymous hemianopia. The discovery of these quadrantic hemianopias has revolutionized localization in the temporal lobes.

It is typical of quadrantic hemianopias that the visual defect is incomplete, and it is owing to this fact that they have so long escaped attention. They can only be discovered by the most accurate and painstaking perimetry, and only at an early stage of the development of the tumour. A rough perimetry will miss them entirely, and in a late stage they will be merged in a complete hemianopia, but if found they are almost conclusive evidence of a tumour in the temporal lobe.

But the temporal lobe yields another symptom as bizarre as any in cerebral symptomatology. When a tumour involves the uncus the patient is liable to peculiar attacks, lasting for a few seconds and perhaps recurring many times in the day. In these he is overpowered by a dreamy sensation, the world seems remote, and voices sound far away. In this state he may have curious hallucinations of smell, taste, hearing, or vision. The first two are perhaps the most common, and though sometimes pleasant are usually so repulsive as to produce an expression of disgust on the face. Those of vision are very curious, and form definite pictures, such as a row of black cats or a little figure, in contrast to the visual disturbances seen in tumours of the occipital lobe. These pictures are the same on every occasion, and they are always in the blind portion of the visual field. The combination of a quadrantic hemianopia with uncinate attacks thus forms a very complete and exact syndrome, distinguishing sharply, when it occurs, tumours of the temporal lobe.

SURGICAL ACCESS TO THE BRAIN.

The problem of obtaining easy access to the interior of the skull has become of increasing importance with the modern demand for large openings, in which it shall be possible to replace the bone without fear of risking its vitality. The problem raises several questions, the first of which is that of access to the skull itself. It is a curious example of tradition that until quite recently it was generally believed that contact with the scalp must be maintained if the blood supply of a bone flap was to be preserved.* I have, however, demonstrated conclusively that the vascular supply of the bone and of the scalp are entirely independent, so that the scalp may be turned down freely without the slightest prejudice to the vitality of an osteoplastic flap, which derives its vascular supply entirely from its muscular pedicle. The free exposure of the skull is obviously the first stage towards easy access to the brain.

There are three primary regions from which the brain can be approached—the temporal, occipital, and frontal—and in each instance the scalp flap required presents certain peculiarities.

In the temporal region a flap of any dimensions may be formed, care being taken that the anterior portion of the incision lies well in front of the ear, so as to avoid injury to the superficial temporal artery. In this instance a great advantage is gained by first marking out the pedicle with two small incisions, one in front of, and one behind, the ear, tunnelling through with a blunt dissector in the areolar layer, passing one blade of a soft intestinal clamp through the tunnel so formed, and with it clamping the base of the pedicle. If this is done there will be no bleeding whatever from the cut margin of the flap itself, and the attention of the surgeon can thus be directed solely to preventing bleeding from the opposite side of the incision. After the incision has been made and the bleeding arrested the whole flap can be turned down as far as the clamp at its root without the division of anything except soft areolar tissue, and without bleeding from a single point.

In the occipital region the scalp can only be turned down as far as the superior curved line of the occipital bone, since below this point it is firmly attached to the muscles. If an attempt is made to raise it beyond this point the origin of the occipitalis muscle must first be divided, and the skin must then be dissected away from the muscles, to which it is united by dense and vascular fibrous tissue, and bleeding may be considerable. With the methods of approach which we now adopt we always respect this attachment, and never go beyond it. None the less we can turn down osteoplastic flaps in this region, and even remove the bone, without ever detaching the scalp from the muscles to which it so firmly adheres.

In the frontal region superb access to the bone may be obtained by very simple means. If an incision is carried boldly across the bregma, coming down just in front of the ear, it will be found that the whole of the forehead can be turned down without the slightest difficulty, even beyond the upper margins of the orbit. It is true that the anterior branch of the superficial temporal artery is divided, but the forehead has an ample blood supply apart from this. I would again point out that even in this region the vitality of the bone is in no way jeopardized, and that an osteoplastic flap consisting of one-half of the frontal bone may be formed with perfect success on the temporal muscle as a base. When the scalp flap is replaced the suture line is entirely out of sight, and the nerve supply of the forehead is still intact. I have repeatedly carried out all these procedures under local anaesthesia with a conscious patient; there has been an entire absence of

* Hunterian Lecture, *British Medical Journal*, February 25th, 1928.

either shock or pain; and in the case of the frontal flap the only additional precaution taken was to cover the patient's eyes and face with a sterile bandage.

CONTROL OF HAEMORRHAGE.

The control of haemorrhage from the scalp is a matter of the very first importance to which sufficient attention is rarely paid. Any loss of blood at this point is entirely unjustifiable and may prejudice the further stages of the operation very seriously. Bleeding from the smaller vessels is best controlled by a preliminary injection of the whole line of incision with 1/2 per cent. novocain, to which about 1 per cent. of 1 in 1,000 adrenaline has been added. At the same time it is our custom to infiltrate the whole of the subaponeurotic space in the operation area with the same solution. If this is done half an hour before the operation there will be no bleeding at all from the smaller vessels, and only the larger arteries will require attention. These may be seized in special forceps, such as those of De Martel, which grasp the whole thickness of the scalp, or they may be compressed by seizing the galea in artery forceps and drawing it over the cut area. The arteries themselves it is impossible to seize owing to the density of the tissue in which they lie. Personally I use small steel clips which are crushed with forceps on to the margin of the scalp. They hold it quite firmly without injury, they are so small that they are not in the way, and at the end of the operation they are very easily removed. In the case of the temporal flap I have already described the means by which bleeding from its margins is prevented. In the frontal flap the incision lies in a watershed area where vessels are very small, and the only two vessels which bleed are the anterior branches of the superficial temporal artery. The absolute bloodlessness of this line of incision is remarkable and a very great advantage.

DIVISION OF THE BONE.

Even when the skull has been freely exposed the actual division of the bone presents a mechanical problem of no mean order. With the old methods it involved an expenditure of time and a degree of exertion on the part of the surgeon which only too often left both patient and surgeon physically exhausted, at a moment when the real business of the operation was only about to begin. It has long seemed to me that it should be possible to cut through the skull entirely by hand if the problem could only be reduced to the terms of ordinary engineering. I have now succeeded in devising an appliance by which the skull can be divided entirely by hand with great facility and so smoothly that the operation can be easily accomplished on the conscious patient under a local anaesthetic. The appliance was specially designed for the formation of large osteoplastic flaps, and it enables the surgeon to form these with a facility, a rapidity, and a precision hitherto unapproached.

The principle on which it works is the entirely novel one of securing a steel peg in the skull at the centre of the proposed flap and using this as a fulcrum round which can turn a powerful lever carrying a cutting tool. The cutting tool is a narrow chisel such as is used by turners for parting their work, and it cuts in the skull a narrow circular channel with extreme precision. The groove is cut on a bevel, and one advantage of the method is that the bone flap can be replaced with the absolute accuracy of a ground glass stopper. Naturally so novel an instrument requires some practice before it can be used with facility, but when this is attained large bone flaps can be cut with an ease and rapidity hitherto unattained, and we have seen a four-inch flap turned down in the temporal region in four minutes without any apparent effort on the part of the surgeon.

OSTEOPLASTIC FLAPS.

Having shown the possibility of obtaining a full exposure of the skull by first removing the scalp, and having described the apparatus at our disposal for dividing the bone, I will now discuss the actual formation of osteoplastic flaps. These are required in three regions—lateral, posterior, and anterior—and as the method of formation is in each case distinct, I will deal with them separately and in this order.

Lateral approach by means of a temporal flap is the commonest mode of access to the brain. Not only is it required for the removal of tumours in the sensorimotor region and in the temporal lobe, but it is often the most convenient and effective method of obtaining decompression. A large scalp flap is first turned down, as has been already described, bleeding from the flap being controlled by a clamp across its base, and from the scalp by clips attached to its margin. The total loss of blood should be trivial, and all bleeding must be absolutely checked before the next step is taken. The scalp flap and the exposed area are carefully protected by gauze pads moist with warm saline.

The bone flap required is now marked out with a compass, and the bone is divided round three-quarters of a circle with the craniotome, the temporal muscle which is to form the hinge being carefully preserved. Elevating levers are inserted and the thin bone in the temporal fossa is cracked, when the bone flap can be turned down and out of the way. The bone usually cracks at a point half an inch or more from the base of the skull, and it is convenient to strip down the temporal muscle as far as the temporal crest and to remove the thin bone with punch forceps. In this way maximum use can be made of the opening in the skull, and if the bone is replaced the defect left at its base forms a very useful subtemporal decompression.

Posterior approach to the brain has usually been obtained by piecemeal removal of the occipital bone below the lateral sinuses, and this has been generally regarded as a region entirely unsuited to the formation of osteoplastic flaps. The situation has, however, been entirely altered by the craniotome, which enables huge osteoplastic flaps to be turned down in this region with precision and safety, affording an access to the cerebellum, the brain stem, and the occipital lobes never before achieved. At the same time the bone, in whole or in part, can be replaced with perfect accuracy and with absolute security. The effectiveness of the method can be sufficiently judged from the fact that the whole of the back of the skull, from the lambda to the foramen magnum, can be turned down in five minutes with the utmost ease, without the slightest violence, and often without any change either in the pulse rate or the blood pressure of the patient.

A scalp flap is first turned down, as we have already described, as far as the superior curved line of the occipital bone, to which it is attached. This flap should overlap the proposed skull flap by half an inch. A point is now selected about half an inch above the external occipital protuberance, and here a hole is drilled for the centre pin. The bone at this point is very thick, and it may not be necessary to drill completely through; indeed, it is an advantage not to do so, as a large emissary vein may be encountered. Should, however, bleeding occur, it is immediately stopped by the insertion of the centre pin, which is then secured in place. The skull is cut as usual, and as it is here often half an inch or more in thickness the power of the craniotome is fully demonstrated. A channel is cut which divides the thick bone completely and extends below the lateral sinus on each side. With a specially guarded chisel the extremities of this channel are extended towards the foramen magnum, when it will be found that on raising the bone the whole posterior margin of the foramen magnum is included in the fragment. Seizing the upper margin of the bone in forceps it is drawn forcibly backwards, so as to avoid injury to the medulla, and it is then turned downwards over the nape of the neck, still attached, of course, to the whole of the nuchal muscles.

The only risk in this procedure is that of haemorrhage from the large emissary vein which communicates between the torcular Herophili and the vascular diploë of the occipital bone. In raising the bone this vein is torn, and the finger of an assistant must be immediately applied to stop the haemorrhage. A small piece of muscle, cut ready for the purpose, is now applied and held in place by the finger for three minutes, when it will be found to adhere firmly and to have stopped the bleeding. Occasionally a similar but smaller vein may be torn from the superior longitudinal sinus, but it is easily dealt with in a similar

manner. There would seem to be no risk whatever of injury to the sinuses themselves.

The field now obtained is very remarkable. In the centre lies the torcular, the lateral sinuses spreading outwards on each side, whilst above these the occipital lobes are exposed to an extent of perhaps two inches. Ideal access to the cerebellum is offered, and, if necessary, the posterior arch of the atlas can be removed. But most important of all is the relaxation of the tentorium which results from the removal of its posterior support, so that it can now move upwards freely and release the pressure on the medulla. Provided there is no undue pressure on the upper chamber this may provide sufficient decompression without any opening of the dura, and in a case of midbrain tumour with secondary hydrocephalus this procedure alone was sufficient to secure permanent relief. In any case a combination of this with aspiration of the ventricles will give all the relief of tension that can be desired.

Mobilization of the tentorium, so far as I am aware, is an entirely new procedure, and it is only rendered possible by the occipital osteoplastic flap which has been described. Without the craniotome the formation of such a flap is scarcely a mechanical possibility, for it demands the clean cutting of the densest part of the skull over a very large circle. The trauma to the patient which would result from attempting to do this by any other method would be so serious as to prohibit its performance. Moreover, the flap must be turned down with great rapidity if serious haemorrhage is to be avoided from the large emissary vein, to which reference has been made. With the method here described the actual turning down of the bone flap is practically instantaneous, and in no case has the bleeding remained uncontrolled for a longer period than two seconds. I am so impressed with the value of mobilization of the tentorium that I feel that this possibility alone justifies the invention of the craniotome.

Anterior approach is rendered much easier by the frontal scalp flap, which has already been described. This places the whole of the frontal region at our disposal, and allows the formation of osteoplastic flaps on a generous scale. The thick anterior portion of the temporal muscle, the origin of which extends right up to the angular process of the frontal bone, furnishes an ideal hinge and preserves an adequate blood supply. If the craniotome is used the centre will generally be placed a little above the temporal line, and the line of division of the bone will be just above the superciliary arch and to one side of the middle line, although the latter may be crossed without risk if a really full exposure is desired.

This method of approach furnishes admirable access to the frontal lobe, and, if this is displaced, to the falx cerebri, in its anterior portion. It is, however, of still greater value in the approach which it offers to the pituitary gland. If the bone flap is properly formed it will be found that the whole of the bone overlying the frontal lobe has been removed, and that the lobe can therefore be displaced upwards with quite unusual facility. If the hyperextended position of the head is adopted it will be found that the frontal lobe actually falls away from the orbital plate, so that the route to the pituitary is opened up even without mechanical retraction, and all contusion of the brain is avoided.

There is no art in which the human factor is more important than in surgery, and it is therefore well that surgeons should have at their disposal a large variety of methods from which to choose. The stock of any instrument maker will show the efforts that have been made to meet their individual requirements, but I have sometimes wished that surgeons themselves would realize the essentially mechanical nature of some of the problems by which they are faced and the technical skill required to use successfully the elaborate appliances now placed at their disposal. It would be an immense advantage to the student if at some point of his training he were taught something of the mechanic's art, and realized the cunning of the hand involved in the dexterous use of even the simplest tool; for whatever the ingenuity of the instruments provided for the surgeon's use their success must ultimately depend on the skill of the hand which uses them.

THE SPA TREATMENT OF DISEASE.*

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ALTHOUGH it cannot be claimed that there is anything strikingly new or original in the remarks that follow, it should in extenuation be borne in mind that systematic study of this branch of medicine has hitherto, I believe, found no place even in British universities so enlightened as that which this Branch is fortunate enough to possess within its area, and a presentation of some of the problems involved may not be without interest.

The virtues of the chalybeate waters of Spa, near Liège in Belgium, were known as early as the fourteenth century, and so famous was this resort some 300 years later that the word "spa" or "spaw" was adopted in this country as the generic term for any spring or well possessing medicinal properties, and later became extended to comprise any town or locality in the neighbourhood of such a spring.

The use of natural waters in the treatment of disease is, however, much older than this, and has obtained from remote times in most widely separated parts of the world—for instance, amongst the Greeks, Romans, Mexicans, Japanese, and Russians, to mention only a few. Even the Father of Medicine himself, Hippocrates, admittedly the greatest exponent of the healing art of all time, has every right to be regarded as a spa physician, since the site of the temple at Cos, where he practised, was, like that of the other Asclepia, selected for its climatic and other natural advantages, and great use was made of hydrotherapeutic and other physical methods of treatment—combined, however, it must be confessed, with a good deal of ritual and mystification. At one time there were as many as sixty or seventy of these temples of health or Asclepia in Greece, and many of them, being situated in the neighbourhood of healing springs, may be said to have combined the functions of present-day hospitals and spas.

In the early days of the revival of spa treatment haphazard drinking of, and bathing in, the waters were resorted to, but with their later development, as the result of experience and the scientific study of hydrology, their internal administration and external application became to some extent systematized, though modifications were, and always will be, necessary to meet individual needs. Many valuable adjuncts in the form of douches, massage, electrical treatments, physiotherapy, and so on have been added.

It is estimated that every year over one million persons seek relief at the European spas alone, and the fact that spa treatment has held its own for so long and is increasing rather than waning in popularity—notwithstanding the fierce competition of the latest synthetic drugs, animal extracts, vaccines, serums, psychotherapy, and the great development of surgery—leads to the natural query, What are the factors to which its success is to be ascribed? The answer, even by those who firmly believe that certain classes of patient will obtain benefit from spa treatment which they will obtain so rapidly and completely in no other way, is by no means easy.

These factors may be considered under three heads. The first may be termed the hydrotherapeutic—namely, the benefit to be gained from the administration of water internally and its application externally, considered as water simply and without regard to any other constituents. Secondly, the pharmacological factor—that is to say, the effect of the salts, gases, colloids, radium emanations, etc., which may be present in the water concerned, its electrical conductivity, and osmotic function. And thirdly, the general hygienic and psychical factors.

Internal Administration of Waters.

It is possible that much of the benefit of spa treatment is due to drinking large quantities of water. Many natural waters are isotonic, or nearly so, and can be taken in

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considerable amounts without damage to the gastric mucous membrane. This is not true of distilled water or other water of extreme purity, such as glacier water or that of the so-called "poison spring" at Gastein, which are known to have a definitely deleterious effect on digestion. Many natural waters, too, are thermal, and it certain cases it may be an advantage to avoid the abstraction of heat occasioned by the ingestion of much cold fluid. It was found, for instance, by Winternitz that the drinking of 500 c.cm. of water of a temperature of 46.5° F. caused a fall in the rectal temperature of nearly two degrees in twenty minutes.

Both reason and experience dictate that the ingestion of large quantities of water, such as is the practice at many spas, should take place when the stomach is empty. Otherwise, not only may digestion be retarded by dilution of the gastric juice and distension of the stomach, but absorption and excretion proceed less rapidly; and since, according to prevailing views, the object to be attained is a flushing effect on the tissues, this would be an obvious disadvantage. It has been shown that water taken when the alimentary tract is relatively empty reaches the duodenum in thirty seconds and the colon in five or six minutes, so that it is very rapidly absorbed and excreted, and conceivably helps in the elimination of bacterial toxins or poisons formed as the result of faulty metabolism.

Copious water-drinking leads to an augmented excretion of fluid—to some extent from the bowel, to a greater extent from the skin, but more still, at ordinary temperatures, from the kidneys. Not only is a greater amount of water passed, but there is said to be also increased excretion of urea, chlorides, sulphates, and phosphates. With regard to chlorides the increase is but temporary and is followed by a diminution, so that the total quantity of chlorides voided remains the same. The increase of urea, of phosphates, and of sulphates, however, is persistent—that is to say, continues as long as the additional fluid is imbibed—and, since no loss of body weight occurs, the probability is that not only is there a greater disintegration of the tissue elements which give rise to these, but that there is, in addition, an increased formation—in other words, a definite quickening of metabolism. This is confirmed by the recent experiments of J. B. Orr,[1] which show that excessive ingestion of water in healthy individuals leads to increased excretion of urinary nitrogen, increase of total nitrogen excreted as urea, marked increase in excretion of ammonia, and decrease in faecal nitrogen—results which he considers as evidence that both the anabolic and katabolic phases of protein metabolism are accelerated.

It was shown as long ago as 1910 that increased water ingestion diminished the number of bacteria in the faeces, and since one source of the pressor substances responsible for hyperpiesis appears undoubtedly to be bacterial action upon the proteins in the intestine, it is interesting to note that Orr[2] has found a definite fall of the systolic and diastolic pressures in both normal and hypertensive individuals after drinking three or four litres of water, though where diuresis is unable to keep pace with the intake the fall may be preceded by a rise above the original level. Increase in the parotid and pancreatic secretions has been observed in animals after copious water-drinking; the bile, too, is said to be increased both as regards its fluid and solid constituents, and its specific gravity diminished.

External Application of Waters.

With regard to the external application of water there is no need, after the admirable cinematograph demonstration given to the society as recently as last year by Dr. R. G. Gordon, even to enumerate the various methods employed, but some of the physiological alterations produced in the body may perhaps be considered—that is, as far as they are known, for although many careful and exhaustive experiments have been carried out there still remains much to be learned.

It has been calculated that the pressure in an ordinary bath of plain water is as much as 500 kilograms. The tendency of this pressure—a tendency which, however, may be counteracted by other factors—is to constrict the superficial blood vessels and thus to drive the blood into internal parts. This is probably the explanation of the diuresis which may result even from hot bathing. The chief effects of baths, however, probably depend upon the temperature at which they are administered. Baths at or about the temperature of the skin—namely, 93° F.—are designated athermal or indifferent. They have no thermal results, but have a markedly sedative action on the nerve endings in the skin, and through them on the nervous system as a whole, and are thus of value in relieving pain and facilitating movement in conditions where muscular spasm is present, as in some cases of chronic arthritis and the results of injury.

The subjects of paralysis from organic disease of the nervous system at one time formed a considerable proportion of those sent to spas, and R. G. Gordon[3] has of recent years given an impetus to the revival of this practice by stressing the value of the sedative influence of warm baths in relaxing muscle rigidity and the counteraction of the effect of gravity by the water in rendering passive and re-educative movements more readily performed. Baths of a higher temperature have additional effects. In the first place, the amount of perspiration is increased, and as much as a pound of weight may be lost in sweat by immersion in a bath for thirty minutes at a temperature of 100° F., or for a less period at a higher temperature; whilst Raiment's researches at the Royal Mineral Water Hospital show that its composition may undergo modifications the significance of which we are not yet in a position to appreciate. At the same time the body temperature rises. This is only to be expected, since loss of heat from the skin, whereby some 90 per cent. of heat loss normally takes place, is, with the exception of the small area of the face and scalp, entirely prevented. It is difficult to imagine in these circumstances, with the body immersed in a medium hotter than itself so that loss of heat by conduction, by radiation, and by evaporation is almost completely in abeyance, how the temperature can fail to rise if the production of heat is maintained at the former level. Indeed, it seems wonderful that it does not rise to a greater extent than is actually the case, for observations show that the intake of oxygen and the output of carbon dioxide may be increased by as much as 50 to 100 per cent., indicating apparently that metabolism is not diminished and slowed down, as might be anticipated, but actually increased. These facts are very difficult to reconcile, since the body temperature seldom rises as high as that of the bath, though Dr. J. B. Burt[4] found a slight rise of temperature in patients bathing in simple water at a temperature below blood heat—namely, about 96° F.

Recent experiments at the Department of Physiology at Pennsylvania showed that immersion in baths at 36° C., rapidly raised at the end of an hour to 40.2° to 43° C., caused a rise in body temperature at the rate of from 1.9° to 5.3° C. per hour, greater depth and rapidity of breathing, with marked diminution of the alveolar carbon dioxide tension, increase of the *p*H value of the plasma, and diminution of carbon dioxide in the blood. The urine was increased in quantity and became alkaline, in half the cases becoming even more alkaline than the blood.

These observations seem to show that the effect of hot bathing on metabolism is much more complex than was formerly supposed, and other detailed investigations into this interesting problem might profitably be undertaken. It is easy to understand, for instance, how an air temperature of 70° F. feels comfortably warm, whilst a bath at the same temperature feels cold, since water is a much better conductor of heat than is air; but it is difficult to explain the difference in one's sensations in water and in air at temperatures ranging from 100° to 105° F. The artificial pyrexia may persist for an hour or more after the bath, and is in all probability an important factor, especially in many so-called rheumatic conditions where the body temperature tends to be subnormal.

Of equal importance with the temperature is the length of stay in the bath. A hot bath of brief duration acts as a stimulant, but a bath too prolonged is succeeded by a condition of lassitude and debility, and even of tetany—results carefully to be avoided in practice. In this country the best results, where thermal effects are desired, have usually been obtained from baths at a temperature of 99° to 105° F., with a duration of fifteen to twenty minutes.

At Kusatsu in Japan the temperature of the water is 130° F.; the bather has to be encouraged to enter the water by the beating of gongs, and can only remain there two or three minutes. As a contrast to this, at Kawanaka, also in Japan, where the temperature of the water is just below blood heat, the patient stays in the bath for weeks on end, with stones in his lap to prevent him floating during sleep.

It has been stated that one result of hot bathing is to augment the amount of urea excreted; but the evidence on this point is conflicting, and though, as has been explained, it is difficult to conceive that metabolic processes can be increased whilst the person is actually in the bath, and while they, with the exception of the lungs and respiratory muscles, are perhaps rested, it may be that they are speeded up subsequently, especially if, as is frequently the custom, the patient is packed in hot blankets afterwards.

Schamberg and Rule[5] have demonstrated that syphilitic infection of rabbits after testicular implantation of the virus can be prevented by eleven daily baths, each for fifteen minutes, at 113° F., with an average rise of body temperature of 5° F., if the first bath be given within three or four days of inoculation; and that the disease in the chancre stage can be completely cured by fifteen such baths. Schamberg and Tseng showed that an emulsion of *Spirochaeta pallida* heated for one hour at a temperature of 40° C. failed to produce syphilis, though the spirochaetes were still motile. In treating by hot baths human beings suffering from syphilis they found perceptible improvement in the cutaneous manifestations, sometimes to the point of disappearance, but only a slight change in the Wassermann reaction. It must be borne in mind, however, that the normal temperature of rabbits is some four or five degrees Fahrenheit higher than that of man, and while the temperature of the rabbits was in some cases raised as high as 109° F., the highest point reached in human beings was several degrees lower.

These experiments suggest the possibility that the rise in temperature produced by hot bathing may have either a direct devitalizing action on the micro-organisms responsible for some forms of infection, or else may have an effect in raising the body resistance. Colebrook, Eidinow, and Hill,[6] in an inquiry into the effect of radiant and other heat on the bactericidal power of the blood, came to the conclusion that heat and other "insults" to the skin provoke or increase the defensive power of the body (*a*) by a direct effect in improving immunity, and (*b*) by stimulating the immunizing mechanism through the absorption of the products of tissue damage. Schamberg and Tseng also found, consequent on the hot baths given to syphilitic subjects, (*a*) a transient leucocytosis, followed by a brief reduction in the white cells; (*b*) a slight rise in systolic blood pressure and frequently a great drop in the diastolic pressure, both of temporary duration; (*c*) a fall in the blood cholesterol averaging 10 per cent.; (*d*) a rise in the blood sugar averaging 10 per cent.; and (*e*) no material influence upon the urea, nitrogen, blood uric acid, or proteolytic or lipolytic enzymes. Both hot and cold stimuli of a gentle nature are said to assist the circulation by stimulating the unstriped muscle fibres of the blood vessels, causing an alternate contraction and relaxation, the so-called peripheral heart of Onimus.

It is also claimed that bathing has an important effect on the "perspiratio insensibilis," which may include fluid not only from the sweat glands, but also water from the body tissues and the blood stream itself, whereby waste products, probably mainly acid, which the lungs are unable to deal with, are eliminated in the form of gases or vapours. Baruch showed, in a number of experiments on both healthy and diseased persons, that the number of red blood cells and leucocytes was almost constantly increased after hot bathing, and that there was a less marked increase of haemoglobin. A considerable increase of the relative quantity of acid phosphate in the blood, sometimes to as great an extent as 100 per cent., has also been demonstrated. The action of vapour baths, which, however, are given at a higher temperature—100° to 115° F.—resembles that of hot immersion baths as regards the production of pyrexia; but with hot-air baths, there being no hindrance to evaporation from the skin, there is little or no rise of body heat, whilst the amount of perspiration is even greater.

The effect of douches varies with the temperature at which they are given and the pressure employed. At extremes of temperature they are powerful stimulants, both locally, to the circulation at the spot where applied, and generally, by their reflex action on the nervous system. Subthermal douches at a low pressure are, on the other hand, pronounced sedatives.

The action of cold baths need not be exhaustively considered, since their chief therapeutic indications are in acute diseases rather than in the chronic maladies dealt with at spas. They cause an enormous increase of heat production, a slowing and strengthening of the circulation, and rise of blood pressure, and are, or should be, followed by a reaction in which the skin flushes and the mental and bodily vigour is increased. Cold, either as a brief immersion bath or as a douche, has therefore a valuable stimulant effect where this power of reaction is present, but must be used with caution in the debilitated and at the extremes of life, where this power is apt to be lacking. Of great importance, however, is the improvement which can be wrought by these means in the power of reaction of the skin. The Russian is said to go straight from his vapour bath to roll in the snow, and though it is not usual in this country to aim at a contrast quite so violent as this, there is no doubt that the nutrition and readiness of response of this organ, so essential in a changeable climate, can be vastly bettered by suitably adjusted hydrotherapeutic measures.

Pharmacological Effects.

When we come to discuss the pharmacological effects of natural mineral waters we find ourselves on even more debatable ground. Though he does not appear to be referring exclusively to waters of this kind, Hippocrates, over two thousand years ago, said that "as waters differ in their taste and weight so do they differ in their action upon the body."

Spa waters may be divided into the following groups: (1) the indifferent thermal, (2) alkaline, (3) acidulated, (4) calcareous, (5) sulphur, (6) muriated, (7) sulphated, (8) chalybeate, and (9) arsenical. Whilst many of these waters may produce the pharmacological effects to be expected from their chemical constituents it is not proposed to spend time on these, but to consider whether there may be, in addition, any specific factor or factors common, perhaps, to all, for it cannot be denied that waters differing widely in their characters often appear to be beneficial in the same classes of disorders.

The, at first sight, astounding theory has been advanced by some geologists that many thermal waters, and perhaps other natural mineral waters, are not derived, like the water of ordinary springs, by percolation from the earth's surface, but are formed primitively in the bowels of the earth by the union of nascent hydrogen and oxygen liberated in the breaking up by heat of granite rocks. Be this as it may, it appears to be established beyond question that it is impossible to reproduce by artificial means the conditions which are found in a natural mineral water, and there are various properties to which the therapeutic value of spa waters has been attributed, such as radio-activity, the presence of elements in the form of free ions, the colloidal condition of the substances present, and the presence of rare metals in minute quantity; whilst some hold that it is not so much in the variety of the elements and in their respective quantities, as in the relative proportions of those elements, that the property of a mineral water resides.

Although the water of ordinary springs, and even tap water, may contain traces of radio-activity, the amount is usually very much greater in the waters of spas, and some hold that this is an important therapeutic factor, especially since benefit has been claimed in diseases such as are usually alleviated at spas by the administration of artificially prepared radio-active water, which, too, has been shown to produce diuresis and increase the excretion of uric acid, carbon dioxide, etc., and to lower the blood pressure.

If radio-activity is indeed a factor of importance it affords a reasonable explanation of the time-honoured dictum that a spa water must be drunk at its source and not taken away in a bottle, for radium emanation is rapidly disintegrated, its period of decay, according to Ramsay, being four days. It must not be forgotten, however, that the quantity of radium or its products varies enormously in the different mineral waters, and that spas having little, claim—probably with justice—as good results for the same class of disorders as those having much, and it has recently been suggested that the secret may lie in the ionized or in the colloidal state of substances contained

in the water, or in the interrelationship between radio-active substance, ions, and colloids.

Noteworthy in this connexion are some experiments by Sarmento and Kopazcewski[7] with the water of Vidago, an alkaline water somewhat similar to that of Vichy, which, however, on standing becomes first opalescent, then yellowish, and finally clear again as the suspended particles settle. These investigators injected thirty-six guinea-pigs each with 0.4 c.cm. of 5 per cent. rabbit serum. Six were kept as controls; of the remainder, fifteen were injected daily with 3 c.cm. of fresh Vidago water, and fifteen with water which had been kept four or more days. At the end of twenty days all the guinea-pigs received an injection of 0.2 c.cm. of horse serum. The six controls died of anaphylactic shock. The animals injected with "dead" water showed distress, some becoming comatose, but all recovered within a few minutes. Those injected with fresh water showed no symptoms whatever.

Ferreyrolles[8] has shown that guinea-pigs and rabbits injected intraperitoneally or intravenously with Choussy Perriere water exhibited an increase of leucocytes in the blood to, roughly, double their previous number. A similar injection fifteen days later produced no leucocytosis, while a dose of typhoid toxin, lethal for animals of similar size, produced no effect.

Billard[9] injected three guinea-pigs with a dose of tetanus toxin—lethal in ninety-two hours—two days, seven days, and ten days respectively after injecting them with Choussy Perriere water. The first showed local tetanus of the abdominal wall but eventually recovered, the two others showed no symptoms. Billard has further demonstrated that certain neurotoxins—such as sparteine, snake venom, diphtheria toxin, and tetanus toxin—when mixed with various mineral waters may be inactivated so that doses ordinarily lethal produce no effect, different mineral waters inactivating different toxins.

Results such as these, of which only a few examples have been quoted of numerous similar experiments carried out on the Continent, suggest that there is still much to be learned if full use is to be made of these natural agencies.

Sneider, Bricaud, and Grigaut, in an examination of the blood of gouty patients undergoing treatment at Contrexéville, found that uric acid, excessive at the start, instead of diminishing, actually increased during the course of treatment, but was found to be much less a month or two later, the explanation suggested being that excess of uric acid in the tissues was being "washed out" into the blood, and only gradually eliminated by the kidneys. These findings have been confirmed at Buxton, the average increase of blood uric acid at the end of a three weeks' course being 1.9 per cent., while at the end of a further three weeks a reduction equal to 25.5 per cent. had taken place.

Another property of spa waters which has of recent years been the subject of investigation is their power of activating ferments. It has been shown, for instance, that trypsin added to various of the French natural mineral waters has from two to five times the digestive power of an equal amount in distilled or tap water, and no description of a French mineral water is now considered complete without mention of its "zymosthenic index." Examination of spa water by modern methods, and especially by the use of the quartz spectrograph, has in many cases revealed the presence of a much greater number of metals than older analyses showed, and when we learn that so infinitesimal a quantity of manganese as 1 part in 40,000,000 parts of water will determine the fruiting or not of certain plants, and that broad beans will perish unless they get boron, though so little as 1 part in 12,500,000 is sufficient, we may well hesitate to conclude that traces of rare metals such as caesium or rubidium are altogether without therapeutic effect.

J. B. Burt claims that there are three phenomena characteristic of the action of natural thermal baths which are not found after the use of simple baths: (1) that diseases are alleviated, the action on true gout being so decided that it might almost be called specific; (2) the occurrence of thermal crises, usually in the second week of treatment, characterized by increase of pains, lassitude, and mental depression; and (3) the supervention after treatment by too many baths or baths of too long duration of the condition known as thermal debility. None of these, he states, follow the use of baths of ordinary water. In a patient with a biliary fistula, Mayo Robson found that an aerated alkaline water increased the flow of bile more than any of the reputed cholagogues; other experimenters, however, have failed to confirm this.

Conclusions arrived at as the result of investigations into the effect of spa waters on the output of urine are somewhat at variance. Race[10] found that Buxton water given to gouty subjects has a definite and specific diuretic effect over and above that of distilled water; that it increases the elimination of sodium chloride; and that it decreases the hydrogen-ion concentration and favourably influences nitrogen metabolism by increasing the percentage excreted as urea and reducing the percentage excreted as uric acid and undetermined nitrogen.

It is important, of course, to remember, both as regards diuresis and diaphoresis in the maladies treated at spas, that it is not as a rule simply the elimination of water that is aimed at, but the removal by these means of deleterious substances or the products of increased tissue change.

Peskett and Raiment,[11] in a careful and laborious investigation, found that in healthy subjects Bath mineral water had no effect, as compared with tap water, in increasing either the volume of urine or the amount of total nitrogen, urea, or uric acid contained in it, but that there was some increased excretion of acid radicles and of phosphates. The value of their experiments, however, is very largely, if not entirely, discounted by the fact that the mineral water was given with meals, and not, as has always been the spa custom, on an empty stomach. Although its mineralization is so low as to bring it into the class of "indifferent" waters, the total solids only amounting to about 230 parts per 100,000, the Bath water when fresh presents under the ultramicroscope a perfect colloidal picture, and if the most recent views with regard to the importance of the degree of colloidal dispersion are correct, and when it is realized how readily the colloidal condition is destroyed by, for instance, an acid, it may well be that the time-honoured practice of insisting on these waters being taken before meals may be of paramount importance, and no experiments can be regarded as in any way conclusive unless carried out under these conditions.

General Factors in Spa Treatment.

Finally, there remains to be considered the influence of the various subsidiary factors which come under the heading of general hygienic and psychical. Every practitioner is alive to the profound effect which may be produced by transference from a bleak, dry, wind-swept area to a soft sheltered one, or, conversely, from a still, enervating climate to one fresh and bracing. Other differences of environment are of almost equal importance. Of still greater value is the enforced rest from the strain and anxieties of business, the worries of domestic details, or the enervating effects of dissipation. Change of diet, too, plays a part in assisting the change in metabolism which spa treatment is directed to bring about, while the drinking of large quantities of water, besides the physiological effects which have been mentioned, may mean the drinking of less whisky or less tea—no mean advantage in some instances. Then comes the question as to what part suggestion plays. The very use of the word "cure" for a course of treatment—considered by some a master stroke on the part of whoever originated it—at the outset tends to put a patient in the right frame of mind for responding to the influences that are brought to bear on him, and the effect is doubtless enhanced by the optimism of bath attendants, masseurs, etc., and by mingling with others who are receiving or have received benefit. Another factor of importance is the special experience that masseurs and masseuses obtain in regard to the particular class of patient that frequents the spa. Further, physicians at spas amass an experience of certain diseases much greater than falls to the lot of the general practitioner, and naturally tend to take a keener interest in them, especially since, being as a rule diseases of a chronic nature and not endangering life, they are likely to appeal less strongly to the family doctor than more dramatic happenings.

The foregoing observations, imperfect though they be, may incline you to believe that the potentialities of balneology are not inconsiderable. It will be evident, however, that treatment to be effective must be varied to meet different conditions and to suit different constitutions, and that any attempt to stereotype methods in the many diverse departures from health amendable to spa treatment is foredoomed to failure.

If there be, as many think, some specific influence in these natural waters, it must ever be remembered that it is not to be supposed that diseases will be cured by any direct action of such a remedy, but rather that it will,

like any other remedy, act as a stimulus to those defensive powers in the human body which need to be called into play, and that different individuals cannot all be expected to respond to the same stimulus to the same extent or even in the same manner. Analogies with the treatment of syphilis are suggestive in this connexion: it is well recognized that over-treatment of this malady may be as bad as, or perhaps worse than, no treatment at all, and that the problem in the cure of syphilis is not to get as much of the specific remedy into the body as possible, but that amount which is capable of producing the optimum response by the tissue defences in the individual concerned. Such a view of the mode of the specific action, if any, of a mineral water would go far to explain certain difficulties and anomalies which are sometimes encountered.

There is no doubt that there is a vast field for experimental research into the many problems connected with spa treatment, of which only the borders have as yet been explored. Further, there is need for more publication of the results of treatment of series of cases. It is to be regretted that physicians at spas so seldom put on record their experiences. For this there are probably three reasons: first, a natural, but perhaps undue, apprehension that such a proceeding lays the writer open to the charge of advertisement; secondly, the difficulty of following up the after-histories of patients who are only under direct observation for a short time; and, thirdly, the fact that many of the cases met with are of a very chronic character, and that so much damage has been already done that several courses of treatment may be necessary before the complaint is brought to a standstill, and even then full functional restoration may be impossible. I think it was Sydenham who said, "Chronic diseases require chronic treatment," and this is as true of spa therapy as of any other—a point perhaps not sufficiently recognized and insisted upon.

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FRACTURES OF THE LOWER END OF THE RADIUS IN ADULTS

(*COLLES'S FRACTURE AND BACKFIRE FRACTURE*).

BY

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THE following account is based on an analysis of 424 cases of fracture of the lower end of the radius treated in the fracture clinic of King's College Hospital during the three years 1924–26. Of these fractures 251 occurred in women and 173 in men and youths. Of the latter number, no fewer than 84 were caused by backfire injury from cranking a car. The remainder, and all those occurring in women, with one exception—a backfire fracture—were of the Colles type. Cases of separation of the lower epiphysis of the radius, except those occurring from backfire injury, have not been included within the scope of this article.

THE COLLES TYPE OF FRACTURE.

In all there were 339 cases which might be regarded as of the Colles type, and sustained by falling on the outstretched hand; 250 were in women, and 89 in men. Radiograms, both antero-posterior and lateral, were available for examination in 275 of these cases.

(*a*) *The Radial Fracture.*

In the majority of cases the fracture was transverse, and at the upper limit of the radial surface which enters into the formation of the inferior radio-ulnar joint (Fig. 1). In a few cases the fracture was at a higher level (Fig. 2), and in others a shade lower (Fig. 3). In one case the line

FIG. 1.

FIG. 2.

FIG. 3.

of fracture ran obliquely downwards from a point fully 1¼ inches above the radial styloid process (Fig 4). In cases where severe comminution was present the radiating line of fracture ran vertically up the shaft, and in some cases down to the joint surface. In a number of cases there was a single vertical split passing from the transverse fracture to the joint surface. Radial rotation of the lower fragment was present in all cases, but varied very much in degree in different fractures.

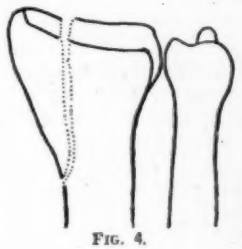

FIG. 4.

Lateral views showed a varied picture. In some there was no sign of fracture in the lateral plane. In a fair proportion of the cases the posterior lip of the radial articular surface was broken off. In a few cases there was little or no appreciable displacement, but in the vast majority there was backward tilt of the lower fragment, so that the articular surface of the radius faced downwards and backwards. This was usually, but not invariably, associated with bodily backward displacement of the lower fragment. In cases where the posterior lip of the radial articular surface was fractured the backward tilt was very marked. In a few cases the carpus was carried bodily backwards with the fractured posterior lip, so that the condition was actually a fracture-subluxation. It is important to remember that this is likely to be present when the deformity is gross, so that steps may be taken to ensure complete reduction. The articular surface appeared to be involved, usually in the manner described above, in 95 of the cases. It is not always possible to be certain of this point from the radiograms, but the figure indicates that the wrist-joint is involved in a high percentage of the cases.

It is doubtful how often the inferior radio-ulnar joint was involved, it being extremely difficult to determine this point. In some cases the joint was very obviously involved, but in the majority the fracture appeared to be just above the upper limit of that joint. It is a common experience to find pronation and supination the last movements to return fully after fracture, and although no correlation between delay in obtaining these movements and fracture into this joint has been found possible in this series, it appears very probable that joint involvement is the cause of the delay in most instances.

(*b*) *The Ulnar Fracture.*

In 158 of the 339 cases the ulna was fractured. In all but 8 of these the fracture was of the styloid process. In one case it was through the shaft fully three-quarters of an inch from the lower end. Fracture of the styloid process occurred in all situations, from the base to the tip. In one case two fragments were broken off.

Whether the ulnar styloid does or does not fracture depends to a great extent upon the amount of radial abduction into which the hand is forced at the time of impact. It would also appear to depend upon the anatomy of the styloid process itself. This varies very considerably. In some cases it is long and narrow, with a curve to the radial

side (Fig. 3). This type invariably fractures. In others the ulna ends in a rounded extremity, with little or no suggestion of a styloid process at all. All degrees are met with between these two extremes. In some cases the process is conical, with a pointed distal extremity and an extremely wide base (Fig. 8). This type rarely fractures.

Fracture of the ulna appears to make very little difference to the end-result. In fact, we have had frequent occasion to note that patients in whom the ulnar styloid is not fractured are more likely to complain of tenderness over the internal lateral ligament than those in whom fracture of this bone has occurred.

(c) *Other Fractures.*

In only one case was the scaphoid fractured in addition to the radius or ulna.

Diagnosis.

There is little need to discuss diagnosis, which is usually a simple matter. Antero-posterior and lateral radiograms should always be taken, even when the diagnosis of fracture on physical signs is certain. Radiograms should be taken in all cases of wrist injury, for a linear impacted fracture may be present with no well-marked physical signs.

Backfire Fracture.

There were 85 cases of backfire fracture, and the radiograms of all were available for examination. They comprised the following types in order of frequency.

1. Oblique fracture through the radial styloid process, with or without fracture of the ulnar styloid. The line of fracture was usually from the outer side to a point about midway along the articular surface, corresponding to the interval between the scaphoid and semilunar bones (Fig. 5). In some cases the line of fracture was longer and more oblique. In extreme cases it ran into the distal end of the inferior radio-ulnar joint (Fig. 6).

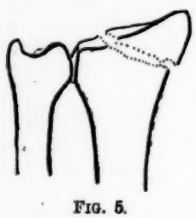

FIG. 5.

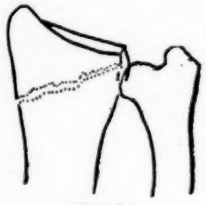

FIG. 6.

FIG. 7.

Displacement was not marked as a rule. The total number of cases was 28.

2. Colles's fracture (16 cases).

3. Injury to the epiphysis, in some cases with separation and backward displacement (12 cases).

4. High fracture (10 cases). The line of fracture was at or just below the junction of the lower and middle thirds of the radius, and was transverse or slightly oblique (Fig. 7). In two cases the ulnar styloid was also fractured. In this type the upper end of the distal fragment is carried just in front of the lower end of the proximal fragment, and the carpus and lower end of the radius are carried backwards.

FIG. 8.

FIG. 9.

5. V-shaped fracture (7 cases). The styloid process was broken off, as in the oblique type, and in addition a fragment of similar size from the ulnar aspect of the radius (Fig. 8). The lines of fracture met at the mid-point of the radial articular surface, corresponding to the interval between the scaphoid and semilunar bones. In one case there was gross displacement of the fragments to the inner side (Fig. 9).

6. "High Colles" (6 cases). Fracture occurred well above the usual site for a Colles (Fig. 10). In one case both bones were broken at the same level. In the other cases the epiphyses had not yet united. This is of interest in that it suggests that the fracture resulted from a direct blow from the starting handle of the car.*

7. Ulna only, just above the distal end (2 cases).

8. Colles's fracture with inward displacement (1 case).

9. Atypical Colles's fracture, a combination of types 1 and 2 (1 case).

10. Trapezium only (1 case).

11. Radial styloid and scaphoid (1 case).

Treatment.

The treatment adopted in this clinic as a routine when deformity is present is reduction of the fracture under gas anaesthesia as soon as the diagnosis is made. The method used is that advocated by Sir Robert Jones—that is, disimpaction of the distal fragment by direct backward force, followed by replacing the fragment by direct force forward. The actual way in which this manœuvre is carried out varies with the individual operator, but there is never any call for the use of the older method of grasping the hand in order to obtain the necessary extension. Great care is always taken to correct the backward tilt of the lower fragment, and the radial deviation. This is of far more importance than the correction of the backward displacement, though this also should receive attention. When reduction has been obtained the wrist is kept in flexion, and is held in this position until the splint is applied. As has been stated, the carpus may be bodily displaced backwards (fracture-subluxation). This displacement is easily corrected if the wrist is fully flexed. A lateral *x*-ray photograph is taken immediately after reduction and fixation on the splint, as a routine. If the backward tilt is uncorrected (except in certain instances—*vide infra*), a further attempt at reduction is made.

The results of treatment go to show that unless perfect reduction of the backward tilt is achieved a perfectly functioning wrist-joint is not obtained. In interpreting the radiogram after reduction it should be borne in mind that normally the radial articular surface faces slightly *forwards*. The only exceptions to the rule of obtaining perfect reduction of the backward tilt are:

(*a*) In old people, if this has not been effected at the first attempt. Each case is seen by the surgeon at the clinic, and in the aged, rather than submit them to the ordeal of a second anaesthetic, it is usually adjudged satisfactory if the tilt is corrected sufficiently to allow the radial articular surface to face directly downwards.

(*b*) When severe comminution is present. In such cases, although it may be possible to replace the lower fragments by manipulation, it is often impossible to retain them in position. The bone is so pulped that the splint fails to give the necessary support, and the deformity recurs.

It may well be asked why in this clinic we attach such importance to the correction of the backward tilt. In our experience an uncorrected tilt invariably results in a weak wrist. Reference to the diagram (Fig. 11) will show that when this tilt is uncorrected the flexor tendons cannot act

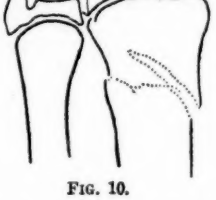

FIG. 10.

FIG. 11.

along their normal straight line, and this may impair their mechanical efficiency to some extent. The main cause of the weak wrist, as Mr. H. A. T. Fairbank permitted one of us to point out in the previous communication already referred to, lies in the fact that the radial articular

* For a more detailed account of the mechanism of backfire fracture see communication by one of us (H. E.) in the *Journal of Bone and Joint Surgery*, vol. 8, No. 4, pp. 701–717.

surface faces downwards and *backwards*. The pull of the long tendons passing over the back of the wrist-joint tends to make the carpus slip backwards over the obliquely disposed radial articular surface. For this reason the muscles act tentatively, and not to the full extent of their power, and the natural outcome is a weakened wrist. In late cases of unreduced backward tilt a successful result has attended operative reduction of the deformity by means of a curved osteotomy.

The chief significance of an uncorrected radial deviation lies in the remote rather than in the immediate result. The mechanism of the wrist is permanently upset, and though perfect function may be obtained for the patient before he finishes treatment, yet the joint is predisposed to the development of arthritis in succeeding years. Except for the unsightly deformity, an unreduced backward displacement is of little importance, and in no way interferes with the obtaining of a perfect functional result. It is the joint which matters, and be a fracture of the radial shaft anywhere along the course of the bone, near to the wrist-joint or remote from it, minor degrees of malalignment do not prejudice the issue.

Splinting.

The essential feature is to keep the wrist straight or slightly flexed to prevent the distal fragment from slipping back into deformity. In this clinic Carr's splint is used as a routine. Used in the correct way, Carr's splint is very efficient, and possesses many advantages over the various splints which have been invented to supplant it. It is very cheap and easily made, and when well applied is comfortable. It is important not to have the splint too wide. It should be a shade narrower than the diameter of the forearm just above the wrist. If wider the wrist will not lie snugly, and lateral movements will be possible. The splint does not hamper finger movements, which we regard as being of extreme importance in preventing stiffness and preserving the tone of the long flexor and extensor muscles. The patient is encouraged to perform them from the outset. Lastly, the splint is made of wood, and permits of *x*-ray examination after reduction. The spliat is applied as follows:

The forearm, after reduction, is placed on the splint, which is covered with a very thin layer of wool. One pad of wool in addition is arranged under the lower end of the proximal fragment. The height of the pad can be varied to suit each individual case, and the extent of palmar flexion required thereby adjusted. A second pad is carefully placed over the distal fragment to maintain its position and prevent it from slipping back. With the arm held on the splint by an assistant fixation is obtained by means of two strips of adhesive plaster one inch wide. One, the first applied, passes over the pad on the distal fragment to secure the latter firmly in position, and a second is placed higher up the forearm to hold the splint in position. A calico bandage is bound over all, one turn passing between the thumb and first finger to prevent wrist movement, and after ascertaining that the circulation in the fingers is unimpaired, a lateral radiogram is taken; this should be examined before the patient leaves hospital. A poor result, particular attention being paid to the backward tilt, will necessitate a further attempt at reduction, unless this is contraindicated by age or the degree of comminution of the fracture. This second attempt should not be delayed for more than a few hours.

We do not adhere rigidly to Carr's splint, however, although it is used in the vast majority of the cases. If there has been very gross backward displacement and tilt, a posterior curved splint of aluminium is occasionally used, which permits of holding the wrist in full flexion. This splint has been found particularly useful in cases of fracture with complete separation of the radial epiphysis —one of the types of backfire fracture, and one often extremely difficult both to reduce and to hold in reduction.

Treatment of the various types of backfire fracture is carried out upon similar lines, with obvious exceptions. In the high type (No. 4) the arm is usually placed in supination on a back splint after reduction, followed by plaster in a few days. In one case in the present series it was found necessary to perform an open operation and plate the bone.

Massage and Movements.

Massage and movements are undertaken chiefly by students training as masseuses, who work under supervision. The interval elapsing between the injury and the time of commencement of massage varies. No hard and fast rules are followed with regard to the time of commencement, but, generally speaking, massage is commenced during the first week in old patients, and delayed for anything up to fourteen days in younger patients. The general routine carried out by the masseuse is as follows:

For the first fortnight after reduction massage is given on the splint, and the only movements permitted are finger movements. These, as stated previously, are very important. When there is much pain and swelling, or stiffness of the joints, or when the patient is nervous, these movements are assisted by the masseuse. Massage consists of effleurage to the fingers, back of hand, and forearm. This is given with the utmost gentleness, since undue pressure over the forearm might result in recurrence of the displacement of the distal fragment. We have found that pain over the internal lateral ligament of the wrist is a common complication. Friction massage is therefore given over the ligament after the seventh day, making this deeper after three weeks. For swelling and stiffness of the fingers friction massage is employed over the joints and dorsal tendons in addition to effleurage. Early in the treatment the shoulder movements are tested. When any limitation is found, the joint is taken through its range of movement at each attendance, and the patient instructed to perform this exercise at home.

After fourteen days the forearm is lifted off the splint on to a table. The anterior surface of the forearm is now massaged as well as the posterior, kneading massage being employed as well as effleurage. Flexion and extension and rotation movements are usually commenced at this stage. The wrist is gently flexed and extended over the edge of the table, either passively or assisted, the masseuse placing one hand over the lower end of the radius to support the fracture. It is important that the distal fragment be firmly supported to prevent movement occurring at the site of fracture instead of at the joint. Flexion and extension movements are followed by very gentle passive or assisted supination and pronation. The hand is held in ulnar deviation to avoid strain on the internal lateral ligament while these various movements are being performed. The splint is worn from three to four weeks, and followed by a sling for a few days, when active wrist, pronation and supination, and full finger movements are practised by the patient at home.

Duration of Treatment.

The average duration of treatment for all cases is nine and a half weeks. This figure takes into consideration a number of chronic patients who attended the physiotherapeutic department for upwards of nine months. If these be excluded it is found that the average duration is about six weeks. In the winter months it tends to be longer than in the summer months. This observation suggests that radiant heat may be of some value in the treatment.

We do not propose to enter into a discussion of the merits and demerits of immediate massage and movement as advocated in some clinics, this article being intended as a simple review of the treatment of cases as carried out at King's College Hospital Clinic. It would not be out of place, however, to point out the reasons why, at this clinic, the after-treatment of the fractures described above is followed.

In the first place, great emphasis is laid upon obtaining and maintaining a good reduction of the fracture. Experience shows that a good alignment affords the best prospect of obtaining a perfect wrist. It cannot be denied that good function often follows a poor reduction. Neither can it be denied that an occasional perfect reduction is attended by a relatively poor function. In the main, however, when a large series of cases are reviewed, there is no doubt that good reduction yields the higher percentage of good results. It must be borne in mind, also, that a malunited fracture, in respect of the radial deviation and the backward tilt, predisposes the wrist to the development of arthritis, and this may mar what had been regarded as a good result in the first year or so after the injury. Massage and movement in the first few days—especially movement—is attended by a very real risk of the distal

fragment being redisplaced. Doubtless the skilled surgeon can safely perform early passive movement, but in the busy rush of hospital practice, where this type of fracture is of such frequent occurrence, this is impracticable, and the work must be done in a department wherein students are being instructed. Apart from this there is a very cogent reason for the postponement of movement. The wrist-joint has been subjected to very severe trauma, and for the first few days it needs complete rest. Movement at the outset probably does more harm than good, and possibly favours the development of traumatic arthritis. The period of complete rest must not be too long, however, especially in old people, for fear of obtaining a stiff joint. A happy mean between too prolonged rest and too early movement is the ideal, and in this clinic we try to attain it. With regard to massage itself, we are convinced that it is not of great importance in the younger patient. Active finger movement does far more to preserve the tone of the long flexor and extensor muscles than massage can possibly do. In old patients the soothing effect of massage is of value, and, as stated, is usually employed during the first week.

It is difficult to give full credit to the very high percentage of good results claimed by some clinics for Colles's fracture. There are so many factors which tend to deprive the surgeon of a perfect result in every case. Not the least of these is the personal factor. We have had frequent occasion to note how two identical fractures undergoing identical treatment vary in the end-result. One patient may obtain a wrist sufficiently sound to admit of his discharge at the end of four or five weeks, while the other drags on for many months with stiffness of the joints, and perhaps pain over the internal lateral ligament. Another factor which is an absolute bar to obtaining uniformly good results is pre-existing arthritis of the wrist and fingers. Examination of this series of radiograms shows this to be of very frequent occurrence. It was present in 26 out of 360 cases (7.2 per cent.). The injury always makes the arthritis worse and the fingers more stiff, despite the fact that in such cases massage is employed at the outset.

The following table has been compiled from the notes of the cases, and gives some indication of the relation borne by the time of commencement of massage and movement to the result obtained. It will be seen that the percentage of good results remains fairly constant irrespective (within reasonable limits) of the time of commencing massage and movements.

	No. of Cases.	Average Duration of Treatment (days).	Percentage of Perfect Results.
Massage commenced—			
Under 10 days	92	67	70
Over 10 days	95	69	78
Wrist movement commenced—			
Under 14 days	65	68	75
Over 14 days	116	62	77
Splint discarded—			
Under 21 days	31	66	84
Over 21 days	155	67	73

These figures are not to be regarded as absolute, and are not intended to be final arguments for or against early massage and movement. They are merely mathematical calculations based upon the material available. For instance, the fact that of 31 cases in which the splint was discarded before three weeks the proportion of good results is 11 per cent. higher than those in which the splint remained on for a longer period in no way indicates that this is the optimum time for splint removal in every case. Of these 31 cases many were linear fractures without displacement, and probably would have done equally well had they not worn a splint at all.

LATE RESULTS.

When it comes to making a definite standard of results difficulties at once arise. It is impossible to set a standard of efficiency beyond which all results are declared good and the others poor. What would be considered a good result in an old arthritic patient might be deplored as a comparative failure in a young working man. Moreover, the following results are based upon answers to a questionary. One patient with a determination to be well will submit a satisfactory report. Another, determined to make the most of it, will discover some complaint even if he has every reason to be satisfied with the result obtained.

The number of copies of the questionary sent out was 416, and the replies totalled 321 (this includes the backfire fractures). In 235 of these (73.2 per cent.) there was no complaint of any kind, and no degree of incapacity to carry out the normal occupation. Many of these cases were in old people, who were obliged to do little or no work, and the fact that they admit being able to carry on with their normal occupation means nothing. For them, however, the result was satisfactory, and they are therefore included in the perfect results.

In the next category are placed all patients who put forward minor complaints, such as "feels stiff in cold or damp weather," "aches after use," "rheumatism in the fingers," "occasionally swells after use." The number of these cases is 74 (23.1 per cent. of the total). All are able to carry out their normal occupations. It is not easy to find causes for every one of these minor complaints: 23 of them had arthritis of the wrist or finger-joints, or both, before the injury; some of them, no doubt, have developed arthritis since. (The cases, it will be remembered, are those of from two to four years ago.) In some of the older patients reduction was not perfect, and they were left with a minor degree of backward tilt. Two of the patients developed small localized thickenings of the palmar fascia; one was a rheumatic subject, but the other was definitely not so; the thickenings were tender. It may be that they arose from irritation of the cross-piece of the splint, or from being bound too tightly in the splint after reduction.

A fairly common complaint is tenderness over the internal lateral ligament. This occurs early after fracture, and has been referred to previously. It appears to be more common in the female than in the male patients. The tenderness usually disappears after treatment, but in a few cases persists. In some of the cases there is some degree of limitation of both flexion and extension, and of rotation at the time of discharge, but this appears to clear up very quickly on the patient's return to work. Occasionally the limitation is very marked both in the wrists and fingers, and persists in spite of treatment. A few of these cases are functional, for the joints become quite mobile under anaesthesia without forcing. An anaesthetic usually cures all but the worst cases of this type. Limitation of movement in one plane only is invariably due to adhesions. Such cases are manipulated under gas anaesthesia. One manipulation is usually sufficient to cure the condition, but occasionally it has to be repeated, for the tendency to relapse is a very strong one. Limitation of rotation is more common than that of flexion and extension, and a certain number of these cases are manipulated. The delay in the return of full pronation and supination probably depends upon involvement of the inferior radio-ulnar joint in the fracture.

The type of work the patient has to do is a factor. Swelling and aching after use are more likely to occur if the occupation be a hard manual one than if it be, say, clerical. Some of the patients write to say that they have no discomfort with ordinary work, but notice pain or weakness after playing tennis. Such patients are mostly of the typist class. The majority of the female cases are occupied in housework, with its varied and manifold duties, some light, some heavy. It is after a day at the wash-tub that their wrists are most likely to make themselves felt.

Such complications as those enumerated are treated upon the following lines. Radiant heat, constant current

or diathermy, is used in addition to massage for pain over the wrist; when this is associated with stiffness, faradism to the forearm muscles is sometimes tried, also sinusoidal current arm baths. When stiffness of the joints persists after eight weeks without pain, the masseuse gives movement of the stiff joints with a steady pull on the resisting muscles. The patient also performs active mobility exercises—pronation and supination with a weighted stick, and wrist flexion and extension by means of a pulley, the patient assisting movement by pulling on the rope with the sound hand. To lengthen the lever arm, the hand is fixed in a clamp and the rope attached to a bar projecting from the distal end.

The remaining 12 cases (3.7 per cent. of the total) may be regarded as bad results. This group is at once the most interesting and instructive, as it gives some indication of loopholes in the treatment. The cases are given in detail.

Ref. No.	Sex.	Age.	Type.	Notes.
C15	F.	57	Colles	Open operation at another hospital. Median paralysis; stiff wrist and fingers.
D46	F.	50	Colles	Attended clinic 9 months after injury with marked backward tilt. Pain and stiffness of wrist and fingers.
A30	M.	61	Backfire, Type 1	Attended for 78 days. Pain and stiffness in wrist: no displacement. Commenced massage on sixth day and wrist movement on thirteenth.
C5	M.	40	Backfire, Type 2	Painful weak wrist, with marked limitation of movement. Marked osteo-arthritis before injury. (There was severe comminution in this case.)
D12	F.	53	Colles	Painful weak wrist; grip poor; fingers stiff. Marked osteo-arthritis before injury.
D3	F.	45	Colles	Painful stiff wrist; third and fourth fingers stiff. Very marked comminution with severe backward tilt before reduction. Massage commenced ninth day, and wrist movement on eleventh. Splint discarded on eighteenth day.
E2	F.	41	Colles	Marked limitation of rotation; wrist painful. Massage commenced on third day, wrist movement on sixteenth.
E26	F.	56	Colles	Always stiff and very painful after use. Osteo-arthritis present before injury. Massage commenced on third day, wrist movement on sixteenth.
F12	F.	42	Double Colles	*Right wrist*: Weak, with marked backward tilt. Operation by Mr. Fairbank, 1926. Now satisfactory. *Left wrist*: Perfect result.
J16	F.	52	Colles	Wrist and fingers very stiff. Attended for 18 months. Slight unreduced backward displacement.
K11	F.	52	Double Colles	*Right wrist*: Constant pain in wrist; swollen at night. Marked unreduced backward tilt. *Left wrist*: Perfect result. Slight backward displacement, but no tilt.
L9	M.	38	Backfire, Type 2	Backward tilt with a weak stiff wrist.

It will be noted that in three of the cases arthritis was present before injury, and was probably responsible for the bad result. One case (C15) came to the clinic after an open operation at another hospital. Another (D46) attended for a few days after injury, and was then not seen for a period of nine months.

An instructive case is that of F12. Both left and right wrists were fractured. In the left the position was good, and a perfect result was obtained. In the right there was marked backward tilt and a weak wrist in consequence. This was operated upon by Mr. Fairbank, the tilt being corrected by a curved osteotomy. Two years later the patient reports that the wrist is satisfactory, and gives no trouble with housework. K11 also had a double fracture. On the left there was a slight degree of backward displacement, but no tilt, and a perfect result was obtained. On the right there was backward displacement with tilt, and a bad result was obtained. L9 was also left with an unreduced backward tilt. These three cases well illustrate the importance of correction of the backward tilt. In the four remaining cases, no cause for the failures can be assigned.

We wish to thank Mr. H. A. T. Fairbank for the very kindly interest he has taken in this article, and both Mr. Fairbank and Mr. St. J. D. Buxton for allowing us to make free use of the material upon which it is based. Our thanks are also due to Dr. Grace Batten for looking up the very numerous radiograms.

MINERS' CRAMP.

BY

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A CASE of miners' cramp which has lately been under my care is, I think, of sufficient interest to record as the complaint is not uncommon, although references to it in literature are very scarce, and whilst it arises out of and during the course of employment and may make a man lose time for a couple of weeks or more, it is not a scheduled disease under the industrial section of the Workmen's Compensation Acts.

A miner, aged 44, was sent to me by his doctor for curious attacks of cramp, which came on while he was working. They began suddenly in the fingers and toes (in tetaniform manner), increasing in severity and gradually ascending the limbs to the back and neck. The cramp in the trunk and limbs lasted a few minutes, then eased somewhat in the limbs, but the hands and feet still remained more or less contracted and would continue so for three to four days. He would then feel well enough to return to work, although not in his former vigour. He has vomited with the severity of the pain. He has had about six or seven attacks during the last two years. He works in a mine, which he says is very hot and dry, and perspires to a considerable amount whilst working, and also when walking about after recovering from an attack of cramp.

During his working hours (one shift 5.30 a.m. to 2.30 p.m.) he drinks five to six pints of water, followed by about a pint of tea with his dinner, and half a pint for tea, and he takes about four glasses of beer in the evening—that is, about 8½ pints of fluid in the day. He does not take salt except with his food, and has no particular desire for salt food, as some miners who suffer from the cramps have. His other workmates have complained of similar troubles, but not to such a marked degree. He had been a miner since sixteen years of age, except for fourteen months in 1919–20, when he worked in a bleach-works. He is below the average stature and the robust physique of a miner. Two years ago a large piece of coal fell on his head, and he was laid up for seven to eight weeks, septic poisoning following in the wound. A few weeks after resuming work his face became swollen for nearly a week, and he was off work about three to four weeks with this illness. It was shortly after this that the cramp commenced.

There were no objective signs of any organic disease. The urinary chloride content was not investigated because I must confess to have not known what was the cause of the man's illness until I looked up the very scanty literature on the subject, and then it was too late for thorough clinical examination. The cerebro-spinal fluid was normal. There was no evidence to show that the injury had anything to do with causing the cramp, unless it had debilitated his system and made him more liable to it than he had previously been.

Descriptions of fireman's or stoker's cramp in medical literature are fairly common, but I have only been able to find two references to miners' cramp anywhere. One is of a somewhat popular but striking nature by J. B. S. Haldane.

"Perhaps the hottest place in England is about a mile underground in a well-known Lancashire coal-pit, where the miners work in boots and bathing drawers, and empty the sweat from their boots at lunch. One man sweated eighteen pounds in the course of a shift, and it is probable that even this figure has been exceeded. This sweat contained about an ounce of salt—twice what the average man consumes in all forms per day. The salt loss was instinctively made up above ground by means of bacon, kippers, salted beer, and the like. And as long as they did not drink more than a quart of water underground no harm came to the miners. But a man who has sweated nearly two gallons is thirsty, and coal-dust dries the throat, so this amount was often exceeded, and the excess occasionally led to appalling attacks of cramp, often in the stomach, but sometimes in the limbs or back. The victims had taken more water than was needed to adjust the salt concentration in their blood, and the diversion of blood from their kidneys to their muscles and skin was so great that they were unable to excrete the excess. The miners in question were offered a solution of salt in water, which was of about the composition of sweat, and would be somewhat unappetizing to the average man. They drank it by quarts and asked for more. And now that it has become their regular beverage underground there is no more cramp, and far less fatigue. It is almost certain that the cramp of stokers, and of iron and glass workers, which is known to be due to excessive water drinking, could be prevented in the same way."

The other paper is by K. Neville Moss, professor of coal-mining, Birmingham University, and is so important from a medical point of view that I take the liberty of quoting freely from it, and recommend all interested in the subject to read it in its complete form. Its title is "Some effects

of high air temperatures and muscular exertion upon colliers."

Miners' cramp has hitherto been observed only among the workers in hot mines where the temperature varies between 98° and 102° F. dry bulb, and 83° to 87° F. wet bulb, and, as far as Moss knows, only in Agecroft and Pendleton pits. Where cases of severe cramp do not occur miners may be partially disabled in respect of working capacity by the same cause that leads finally to attacks of cramp. This subject is of general importance, therefore, in connexion with deep mining problems of the future, and in connexion with other industries where men are performing hard work at high temperatures.

The number of cases severe enough to warrant the carrying of the men out of the pit was only nine in two years, but minor attacks of cramp occurred more frequently, and would no doubt have developed into severe cases had not the men ceased work immediately.

The cramp may be attributed to: (*a*) high air temperature, (*b*) excessive drinking of water due to (*a*), (*c*) continued hard work. Men are generally affected by it during the second half of the shift, and always in the muscles actually being strained at the time. Sufferers are generally men of poor physique. If a man is attacked whilst lifting a full tub on to the rails cramp might occur in the arms, legs, or abdomen. If the latter, the man is put out of action immediately, the contortion of the abdominal muscles being so great as to form a lump the size of a cricket ball.

In severe attacks of cramp it may take half a dozen men to hold down a sufferer and straighten out the affected limb. Such treatment produces excessive exhaustion of the sufferer, and sal volatile is usually administered to revive him. Professor J. S. Haldane suggested that cramp may depend on excessive loss of chlorides by continued sweating, and the matter was then investigated by Professor Moss, Mr. J. B. S. Haldane, and Professor A. V. Hill at a deep coal face at Pendleton Colliery. A sample of urine obtained at the end of the shift from one of the colliers who was subject to cramp gave not the slightest cloudiness with silver nitrate, though only 5 c.cm. were secreted during four and a half hours. This excessive shortage of chlorides in the urine must have been brought about by a combination of excessive sweating and drinking of water. Sweating by itself could have no such effect, as sweat contains only about 0.2 per cent. of chloride, and sweating by itself would tend to concentrate the chloride in the blood plasma.

Rowntree produced water poisoning in animals by injection of large quantities of water into the stomach through a tube. The animals showed the severest symptoms, including twitching of muscles, passing into convulsions.

Water poisoning, or miners' cramp, can be avoided by supplying the miners with a drink containing just sufficient salt to balance the loss of salt by sweating—that is, 10 grains of sodium chloride in a gallon of water. The results recorded by Professor Moss are most interesting and of importance, as will be seen from the account of one case in which the saline drink was given.

The man was of poor physique; he drank eight pints of water during the shift. He had been a frequent sufferer, but since taking salt each day for three months had had no sign of cramp. His evidence was as follows: Appetite much improved; feels quite fresh after a shift's work, where formerly he was obliged to cease work at about 12.30 p.m. each day owing to excessive fatigue; his life at home was changed from one of laziness and sleep to one full of energy; in general he feels a changed man.

My own patient was given a similar saline to drink and he has kept well at his work up to date.

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PREGNANCY ASSOCIATED WITH DIABETES MELLITUS.

BY

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PREGNANCY in a diabetic patient is commonly regarded as an extremely rare event. Not only is there a predisposition to sterility in diabetes, but it was, until recently, held that there is a strong probability of death or miscarriage should pregnancy occur. A. L. Walker[1] last year reported a case of pregnancy and labour in a diabetic woman, the first to be treated in the department of obstetrics at the Middlesex Hospital in a series of 10,000 confinements. Not a single case could be found in the records of the City of London Maternity Hospital among 27,567 patients confined. In reviewing the problem Walker argued that with the advent of insulin, and by the abolition by this agent of hyperglycaemia and acidosis, the risks attending pregnancy in a diabetic woman are not so great as in the days before the isolation of the internal secretion of the pancreas. It further seems to us that by the employment of insulin pregnancy in diabetic patients is rendered more likely.

The following case is of interest since it illustrates certain features of the association of diabetes with pregnancy, and it further throws some light upon the effect of insulin in this combination.

The patient, aged 34, was admitted to the Middlesex Hospital under the care of Dr. C. E. Lakin on June 14th, 1928, on account of diabetes associated with pregnancy.

There was nothing relevant in the family history except that one cousin had diabetes. There had been one previous pregnancy, in 1918, when a healthy child of 6½ lb. was delivered at term. In 1924 the patient began to lose weight, and sugar was discovered in the urine. She was then treated for diabetes in the Middlesex Hospital for four weeks, continuing to attend thereafter as an out-patient. In 1926 her condition deteriorated, and she was readmitted and put on insulin treatment. Equilibrium was established and maintained by doses of 10 units twice daily on a diet representing 2,130 calories.

In the autumn of 1927 she became pregnant; the date of the last menstrual period was not accurately known, but she thought it was at the end of October, 1927.

No new symptoms had been experienced since she became pregnant, and on admission the patient appeared to be in good health. The urine contained a trace of sugar; Rothera's and Gerhardt's tests were positive. The blood contained 202 mg. of sugar per 100 c.cm. This and subsequent routine estimations were conducted four hours after breakfast. The tests for albumin were negative. No physical signs were observed in the cardio-vascular system, in the respiratory system, or in the nervous system. She was then from 31 to 32 weeks pregnant. The vertex was below, the back in front and to the right. Foetal movements could be felt, and on June 30th the foetal heart was heard.

The patient was put on Allen's twelfth day diet (1,560 calories) and given 10 units of insulin daily. While under this treatment the blood sugar fluctuated between 200 and 220 mg. per 100 c.cm., but the excretion of sugar by the kidneys increased, the urine on the fifth day after admission containing 1 per cent., or 32 grams of sugar in twenty-four hours. The dosage of insulin was accordingly increased to 20 units twice daily, under which treatment the blood sugar gradually fell to a normal level, which was reached two weeks after admission. With this dosage of insulin and on Allen's tenth day diet (1,300 calories) the hyperglycaemia did not recur and the urine remained sugar-free but for occasional traces. Rothera's test, however, remained constantly positive, while Gerhardt's test was generally negative.

At 7.30 p.m. on August 15th, nine weeks after admission to the hospital, she went into labour and was transferred to the department of obstetrics under the care of Mr. Comyns Berkeley. Labour was normal; the presentation was a second vertex; the three stages of labour occupied respectively 2 hours, 15 minutes, and 15 minutes. The puerperium was apyretic and involution took place normally. The condition of the urine remained the same as before labour, a trace of lactose being present occasionally and Rothera's reaction remaining positive.

The child, a male, was healthy at birth and weighed 7 lb. 11½ oz., measuring 20 inches in length. It was fed at the breast from birth. During the first three days of life the weight fell to 7 lb. 4½ oz. On the eighth day after delivery the weight was the same as that recorded at birth. Thereafter a steady gain in weight was recorded. The content of sugar in the child's blood was normal and the urine showed no abnormality.

On August 16th, the day following delivery, the blood sugar of the mother was normal—100 mg. per 100 c.cm.; but by August 20th it fell to 45 mg. per 100 c.cm. A specimen of blood withdrawn before breakfast on August 21st contained only 41 mg. of sugar per 100 c.cm. of blood, while the patient complained of drowsiness and blurred vision. She became hot and cold alternately. An onset of hypoglycaemic coma being feared, she was at once given two teaspoonfuls of sugar with the juice of an orange. By 2 p.m. on the same day, as a result of this treatment, the blood sugar had risen to 185 mg. per 100 c.cm. and she had lost her feeling of drowsiness.

Thereafter the dose of insulin was reduced to 10 units twice daily in association with Allen's tenth day diet (1,300 calories). The blood sugar during the remainder of the patient's stay in hospital fluctuated between 65 and 90 mg. per 100 c.cm. She was discharged on September 6th, and seven weeks later was found to be sugar-free on the same diet and insulin dosage.

This case illustrates several important points and confirms Walker's conclusions. First, it shows that treatment with insulin renders sterility less probable in diabetic patients. Far-reaching conclusions cannot be drawn from a study confined to one case, but it appears to us at least possible that the patient would not have become pregnant before the days of insulin. Support is given to this conclusion by one of Bowen's cases.[2] Secondly, it suggests that the dangers associated with pregnancy and labour in diabetic women no longer exist. Thirdly, there can be no doubt that the requirements of a growing foetus put a strain upon the resources of a diabetic patient, as was taught by the older writers. This is shown by the fact that six days after delivery the blood sugar fell to an alarmingly low level. Only half as much insulin had to be given after the birth of the child as before. Parsons, Randal, and Wilder[3] recorded two cases of pregnancy in association with diabetes in which the dose of insulin required reduction after labour. In both their cases the larger dosage had to be resumed some time later. Fourthly, a warning arises in that hypoglycaemic coma may occur after delivery if the dose of insulin is not reduced. The reduction should, of course, be made in accordance with frequent blood sugar estimations.

We are indebted to Dr. C. E. Lakin and to Mr. Comyns Berkeley for allowing us to publish this case, and to Dr. E. C. Dodds, the Courtauld Professor of Biochemistry, under whose direction the blood and urinary investigations were conducted.

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PROTEIN THERAPY IN INSANITY OF PUERPERAL ORIGIN.

BY

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THE successful employment of protein therapy in a case of puerperal mania may well be a matter of general interest. The following clinical details of such a case suggests that it is possible in some instances to avoid the necessity of certification.

A married woman, aged 19, was admitted to Napsbury Mental Hospital on June 10th, 1926. Parturition had occurred six weeks prior to admission. There was no family history of insanity. The patient was very restless and confused, indifferent to her surroundings, incapable of giving any account of herself, and entirely influenced by hallucinations. About three months later she passed into the katatonic state, assuming peculiar attitudes, and exhibiting negativism. This condition was replaced about six months afterwards by one of excitement. She was continuously restless, noisy, destructive, abusive, obscene, very dirty in habits, and incessantly picked her skin. Occasionally she threw herself violently to the ground, sustaining various injuries. This state persisted, and there were signs of impending dementia.

Treatment.

On November 14th, 1927, the patient was put on a light diet; the intestinal tract was well cleared, and a minor degree of dental sepsis was treated. The cerebro-spinal fluid was under tension, but revealed no gross pathological change. The blood had an abnormal tendency to haemolysis and there was a mild degree of chlorosis. A stock mixed vaccine (T.A.B. 2,500 million per c.cm.) was used and a preliminary dose of 100 million was injected into the median basilic vein. The axillary temperature was recorded every half-hour; the maximum pyrexia (104° F.) was noted four hours after the injection, and the patient complained of intense headache; cyanosis was marked. This condition was maintained for twelve hours, after which the temperature gradually subsided and reached the normal at the end of thirty-six hours.

The intravenous injection was repeated on alternate days with gradually increasing doses of T.A.B. vaccine until fourteen injections had been given, the maximum dosage being 2,500 million. During this period a nourishing light diet was augmented by unlimited lemon juice and bland fluids.

Course of Mental State.

After the third induced pyrexia the patient was on the whole less restless and had occasional lucid intervals. She was very impulsive and occasionally threw herself out of bed. Later she had periods of confusion in the morning, which cleared towards noon. Her hallucinations were freely admitted and discussed, and she developed some insight into her condition. Her habits became clean and she abstained from the use of obscene terms.

The mental state of the patient improved; she began to take an active interest in domestic and other details, and she appeared to be convalescing, although she still admitted hearing "imaginary voices" at times. This abatement of her condition was short-lived, for while attending a patients' party she relapsed spontaneously into an intensely confused state. She became very restless, violent, noisy, destructive, obscene, and filthy in habits.

A second course of intravenous T.A.B. vaccine injections was given consisting of nine increasing doses, from a minimum of 125 million to a maximum of 5,000 million. The reactions in most instances were more severe than in the initial course; they were accompanied by rigors and marked constitutional disturbances. Her mental state at this time compared closely with that of a recent acute mania. She was very violent and aggressive, and had to be treated in a padded room owing to her frequent resort to self-injury and violence. This period of excitement persisted for several weeks, but gradually subsided. Since then a gradual improvement has been maintained. She has developed a bright and sensible manner, talks rationally, and takes a normal interest in her surroundings. She realizes her previous mental state, and her memory is good for recent events and for incidents which occurred prior to her mental breakdown. Her emaciated physical state has benefited considerably; her weight has increased by 3 st., an acneiform skin eruption and a seborrhoeic condition of the scalp have disappeared, and menstruation has recurred and functions normally. After a period of three months' convalescence under careful observation she was discharged recovered.

This history suggests that the intravenous administration of vaccines in a mental case, in which a toxic element is probable, appears to have a beneficial effect; that no very alarming signs or symptoms have resulted from these injections when used cautiously; and that the control of pyrexia is easily maintained. On one occasion a reactionary pyrexia of 105° F. occurred after the expected rise had subsided to normal. This was rapidly reduced by tepid sponging, and remained normal. Constipation was obstinate during the course of treatment, and was most effectually dealt with by daily bowel irrigation.

I am indebted to the medical superintendent, Dr. A. O'Neill, for permission to publish this case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ACUTE GASTRIC DILATATION ASSOCIATED WITH PULMONARY TUBERCULOSIS.

THE occurrence of acute dilatation of the stomach in a patient suffering from advanced pulmonary tuberculosis may be considered of general interest in view of the relative rarity of the condition and the uncertainty attaching to its etiology. The following clinical details of such a case may therefore be worthy of recording.

A young woman, aged 21, was admitted to the Osler pavilion, Radcliffe Infirmary, on August 21st, 1928, for the second time. Her illness had begun in January, 1924, with left-sided pleurisy. Since that date the patient had been in various institutions, in one of which, during 1925, artificial pneumothorax was carried out for six weeks. The patient was first admitted to the Osler pavilion on June 17th, 1927, and was discharged on November 11th, 1927. There was extensive disease in the left lung, but the right side was comparatively free from physical signs. On discharge, following sanocrysin injections and general routine treatment, the patient was described as being "much improved." Phrenic avulsion, or other surgical intervention, was refused by the parents.

On readmission, nine months later, the patient was obviously very ill. Considerable fever was present and there were frequent night sweats. For the first time tubercle bacilli had been found in the sputum at an examination shortly before admission. The physical signs on the left side were, if possible, even more extensive than at her first admission, and there were gross signs of infiltration and breaking down in the right lung in the neighbourhood of the angle of the scapula.

At noon on August 27th, 1928, the patient complained of fullness and discomfort in the abdomen, and vomited. The vomiting was repeated in the early afternoon, and the discomfort gave place to acute lancinating pain soon afterwards. The patient was then in a state of collapse. The abdomen was rigid but not tender, and there was no obliteration of the liver dullness. The pain was referred to the left of the epigastrium and later to the umbilical region. The bilious vomiting persisted and hiccup set in. Early in the day the bowels had been open naturally. Micturition and menstruation were normal and there was no history of a previous attack.

In the evening the patient was seen by my surgical colleague Mr. D. A. Abernethy, who has kindly supplied the subsequent notes of the case.

"Patient looks ill. Face anxious and drawn, tongue slightly furred, temperature 101° F., pulse 92, respirations 24. The abdomen moves poorly with respiration and is slightly distended generally, and tender over its whole area. On percussion there is a tympanitic area round the umbilicus, marked shifting dullness in both flanks and almost complete absence of liver dullness."

In view of these physical signs the diagnosis of a ruptured viscus was very naturally made and an immediate operation was deemed necessary.

"Under gas and oxygen anaesthesia the abdomen was opened by a right pararectal incision at the level of the umbilicus. An enormously dilated atonic stomach presented into the wound, and on rapid exploration no cause for this condition could be found. There was no constriction about the duodenum, and the superior mesenteric vessels were not occluding its third part. In view of the patient's general condition the wound was closed as quickly as possible, and a stomach tube passed; meanwhile about a quart of bile-stained fluid was drawn off and the stomach was washed out with two pints of sodium bicarbonate solution."

After the operation the patient survived for as long as eight days. A *post-mortem* examination was refused.

In the *Lancet* (1926, vol. i, p. 758) will be found a description by L. R. Shore of a case of acute dilatation of the stomach complicating artificial pneumothorax.

Reviewing the literature in the same article the writer noted that, out of the ten instances where intrathoracic disease was regarded as responsible for acute dilatation of the stomach (in a total of sixty cases), in one post-operative case pulmonary tuberculosis was found *post mortem*.

Oxford. WILLIAM STOBIE, M.D., M.R.C.P.

VIRULENT DIPHTHERIA AFFECTING FOUR MEMBERS OF THE SAME FAMILY.

THE severity of the disease which ran through this family, together with some of the points in the first case, seem to render the sequence of events worthy of record.

On September 17th, 1928, a boy, aged 15, complained of sore throat. A membrane developed over the fauces and tonsils, and there was great swelling of both sides of the neck. A nasal discharge developed a few days later. A swab was taken of the throat, and a small dose of combined diphtheria and scarlet fever antitoxin was given. The swab was returned negative to the Klebs-Loeffler bacillus. Progress was satisfactory, and by September 22nd the throat and nose were clear and the boy was regarded as convalescent. The next day he was not seen. On September 24th, the seventh day of illness, he vomited several times and became very collapsed. He was found to have a palatal paralysis and paralysis of accommodation, and his heart was beating at the rate of 30 per minute. He was treated with cardiac stimulants. The paralysis was not sufficient to interfere with swallowing, and nasal feeding was not necessary. The heart rate fell and remained below 25 until the end, on one occasion being as low as 18 beats per minute. On September 27th the rate rose to 24, but in the evening he died suddenly. The fact that he was fretting for his brother—who had died a week before from tetanus—and did not want to recover, was not in his favour.

On October 10th the family went to Birmingham for a change, leaving two girls here in Peterborough with an aunt. The following day one of these girls, aged 9, developed a throat very similar to that of her brother. The swab in this case also was negative, but was nevertheless notified as diphtheria, and the child was removed to the fever hospital. She was given 16,000 units of antitoxin intramuscularly, followed by 4,000 units on each of the two succeeding days. She had a severe attack, and is now recovering from cardiac sequelae.

A sister, aged 7, in Birmingham, sickened on the same day as the previous patient, and on October 12th was admitted to the Birmingham City Hospital. Like her sister she had a "bull-neck." She was given an initial dose of 40,000 units intravenously, followed in two days by another 40,000, to which had been added 15 c.cm. of concentrated scarlet fever antitoxin, since she was regarded as having a double infection of diphtheria and streptococci. She is still under treatment at Birmingham.

On October 19th the father developed a throat which was at first thought to be a quinsy, to which he was subject. He was admitted moribund to the Birmingham City Hospital on October 26th, and died within twenty-four hours, in spite of vigorous treatment. The *post-mortem* findings were as follows: Diphtheria membrane was present on the throat and completely lining the larynx, trachea, and both bronchi. The bronchioles throughout the whole of the left lung were filled with membranous plugs. He also had an old mitral lesion, tuberculous scarring of both apices, and small granular kidneys. The membrane in this case formed a tree-like cast of the bronchi and some of the larger bronchioles, his condition being really one of diphtheritic broncho-pneumonia.

It is rather interesting to note that the mother, a girl of 12, and a baby of 10 months escaped, as well as the aunt and her husband and child in whose house the second patient spent her first two days of disease.

The chief interest in the case of the first patient lies in the slow pulse. I have read that unconsciousness usually results with a pulse of 20 or under in cases of Stokes-Adams syndrome. This boy was never unconscious.

My thanks are due to Dr. E. H. R. Harries, superintendent of the City Hospital, Birmingham, for kindly letting me have details of the two cases which were treated in that hospital. I am also indebted to Dr. Bonner for permission to publish the first two cases.

Peterborough. L. B. PHILLIPS, M.B., Ch.B.

THE ELECTRO-MAGNET IN SURGERY.

THE following two cases emphasize the occasional value of a magnet in the removal of a minute and inaccessible foreign body, if made of steel.

CASE I.

A dental surgeon sought my help in the case of a young man in whom he had been producing novocain anaesthesia by blocking the inferior dental nerve. The minute needle had broken off, and was impacted in the region of the inferior dental foramen, between the internal pterygoid muscle and the ascending ramus, and presumably between periosteum and bone. In skiagrams the needle showed clearly.

Through a small vertical incision in the soft overlying tissues it could not be identified, either by sight, or by palpation with finger or probe. The nozzle of an electro-magnet was inserted into the incision, and the current switched on for about six seconds. On withdrawal the needle was adherent to the magnet.

CASE II.

I was asked by the operator to see a woman on whom he had performed a cortical mastoid operation five days previously. He had passed Stacke's guard into the aditus, to satisfy himself that he had really opened the antrum. Some hours later it was noticed that about 1/8 inch was missing from the fine distal end of the guard. Skiagrams in two planes showed the metal in the region of the aditus. I reopened the wound, but could not find the fragment. The magnet, fitted with an L-shaped steel terminal, was inserted into the aditus; first from the antral side and afterwards, since there existed a total loss of membrane, from the middle ear. The steel fragment was removed, sticking to the magnet.

The electro-magnet, with terminals of various shapes, which can be boiled, was obtained from Messrs. Allen and Hanburys.

London, W.1. H. LAWSON WHALE, M.D., F.R.C.S.

IDIOPATHIC HAEMORRHAGE IN THE NEWBORN: RECOVERY AFTER TREATMENT WITH WHOLE BLOOD.

THE following case seems of sufficient interest to record, since such cases are rarely met with in general practice.

A primipara was confined on October 7th, 1928. Labour was normal, and the child, a boy, appeared to be quite healthy. Twenty hours later I was urgently sent for by the nurse. On arrival I found the child in a state of extreme anaemia and collapse, due to melaena neonatorum and haematemesis, which had suddenly started half an hour previously. Fortunately the father of the child was in the house, so that I was able to give the child parental blood intramuscularly within a few minutes of my arrival.

A 2 c.cm. hypodermic syringe was the only one available, but by filling it three times with parental blood 6 c.cm. of whole blood was introduced deep into the pectoral region of the infant. Hot-water bottles were applied, and frequent sips of a whey and cream mixture given to help to make up for the loss of fluid. A teaspoonful of the following mixture was also given hourly: Gelatin alb. 30 grains, sodium chloride 2 grains, distilled water 3 oz.

Six hours later, although no fresh haemorrhages had occurred, I thought it advisable to give a further intramuscular injection of blood. This time a 10 c.cm. Record syringe was used, and 10 c.cm. of the whole blood injected. The child made an uninterrupted recovery, and although the motions remained "tarry" for the next two days no fresh bleeding occurred.

In conclusion, I think the child's recovery was due to the following line of treatment: (1) intramuscular injections of blood were given at once; (2) whole blood was used, as advised by Dr. Cruickshank; (3) artificial feeding was started at once, and was continued until the arrival of the mother's milk, which was then pumped off and the child spoon-fed until he had sufficient strength to suck.

Wadhurst, Sussex. G. H. ROBERTS, M.B., B.S.Lond.

Reviews.

STUDIES ON SCURVY.

IN their *Studies on Scurvy*[1] Professor ARTHUR W. MEYER and Dr. LEWIS M. MCCORMICK, of the Department of Anatomy, Stanford University, have provided a monograph of interest, not only to students of nutritional problems, but to physicians who seek for explanation of obscure conditions of ill health with which they have to deal in practice. The monograph furnishes another example of the widespread changes which may occur in various organs and tissues of the body as a result of diets deficient in vitamins.

The original object of these studies was "to ascertain, if possible, the causes of the appearance of peculiar phenomena in guinea-pigs kept on ordinary feeds and used in experimental anatomy. Among these phenomena were marked nervous manifestations and permanent, as well as profound temporary, locomotor disabilities." The animals did not appear to suffer from scurvy nor was the food on which they were fed suspected as being deficient until Professor Meyer had cured them by the subcutaneous injection of tomato juice, or by feeding some of the younger animals on tender lettuce leaves. Their marvellous recovery, following these measures, pointed to a dietetic origin of the peculiar symptoms from which the animals suffered. Experiments were accordingly undertaken to determine the nature of the responsible deficiencies. The experimental animals were given a basic diet of raw alfalfa hay, rolled barley, and water in abundance, which undoubtedly contained some anti-scorbutic vitamins. Some animals received this diet without its previous subjection to heat; others the same diet after it had been heated to 100° C. for an hour. The same lesions were produced, whether the diet had been heated or unheated; the only differences being that the lesions were more intense and their onset more rapid, while the point of death was more quickly reached, in those that received the heated food. Additions of wheat-germ (to increase the vitamin B content of the diet) or of dried whole milk (to increase the vitamin A content), or of both, to the heated and to the unheated diet, failed either to prevent or to cure the disease. It was concluded, therefore, that the responsible deficiency was one of vitamin C, and that the disease from which the guinea-pigs suffered was scurvy. The details of the experiments are scanty; but from a perusal of the 46 pages of the monograph dealing with the gross and minute morphology of the condition, it is evident that the changes which occurred in the various organs and tissues of the body are those known to be associated with deficiency of vitamin C. Some may doubt whether it be legitimate to attach the diagnostic label "scurvy" to a condition in guinea-pigs which did not present the classical signs and symptoms associated with this label. But the label is unimportant in itself; what is important is the fact that tomato juice and tender lettuce leaves cured the condition and dispelled a widespread state of tissue deterioration. It matters not what the condition be called, provided the cause be recognized and the simple means of its cure applied.

The authors describe anew the lesions noted to occur in various organs and tissues of the body by earlier workers on this subject; as well as some observations that are new—subcutaneous, muscular, pericostal haemorrhages; pulmonary, gastric, duodenal, caecal, vesical, and adrenal haemorrhages; and marked degenerative changes in cartilages, bones, teeth, muscles, many glandular organs, blood vessels, and also in the central, the peripheral, and the sympathetic nervous systems. The cytological changes in the blood are described; changes which became evident in guinea-pigs after ten days on the diet above mentioned. They consist in a decrease of the red blood cells, haemoglobin, and colour index, a relative decrease in the number of lymphocytes, an absolute increase in polymorphonuclears, and an increase in reticulated and nucleated red blood cells and leucocytes. It is to be noted that these changes in the blood, as well as others in the gastro-intestinal tract and urinary bladder, are definitely pre-scorbutic in their onset.

In laying down this monograph after a first perusal of it a number of impressions remain. How many are the obscure phenomena of disease which are traceable to faulty food; how well it is, in the experimental study of nutritional problems, to depart sometimes from the use of so-called synthetic diets deficient in (or supposedly deficient in) a single food factor, and to employ for such studies the ordinary food materials used by the man in the street or by the stock laboratory animal, in both of whom obscure phenomena of ill health so often appear; how instructive it is to work at times with diets which are not wholly lacking in a given food factor, but in which an insufficiency of one or of several is combined with food faults of another order, such as lack of balance in proximate principles; how closely intertwined in the exercise of their functions are the several vitamins; how necessary is an adequate supply of all of them to the maintenance of nutritional harmony, and how readily is this harmony disturbed by the insufficient supply of any one of them; how variable may be the reports of equally competent observers relating to a particular vitamin defect, and how much do these reports depend upon the composition of the diets and the age and strain of the experimental animals, as well as on the conditions of climate and altitude in which the different observers are working; finally, how important it is to recognize that complete deprivation of any vitamin is not a matter with which the physician is greatly concerned in practice, though he is often confronted with an insufficient supply of one or other or several of them in diets often faulty in other regards.

This monograph illustrates the fact that certain manifestations of ill health in guinea-pigs, which bore no close clinical resemblance to the classical picture of "scurvy," were definitely shown to be of scorbutic nature, and to be due to an insufficient supply in their diet of such foods as tomatoes and lettuce leaves. And if in guinea-pigs, why not in man?

R. MCCARRISON.

[1] *Studies on Scurvy.* By Arthur W. Meyer and Lewis M. McCormick. Stanford University Publications, University Series. Medical Sciences, Vol. II, No. 2. Stanford University Press, California. 1928. (Sup. roy. 8vo, pp. 107; 6 figures, 10 plates. Paper cover, 1.50 dollars; cloth, 2.25 dollars.)

ANAEROBIC BACTERIA.

ALTHOUGH of the nature of a review, the work by Drs. WEINBERG and GINSBOURG on recent advances in anaerobic bacteria[2] is to be regarded as a supplement to Weinberg and Séguin's well-known monograph on the anaerobic bacteria of war wounds. The work contains analyses of the various publications which have appeared on anaerobic bacteria since the war up to 1926. The immense amount of labour entailed can be gathered from the fact that something like 1,200 references are cited.

The first part of the volume deals mainly with technical advances in the identification of anaerobes, and contains a list of all the new anaerobes described since 1915. Later the more important anaerobes—*B. chauvoei, B. botulinus, B. tetani, B. welchii*, etc.—are dealt with separately and in a very complete manner, including the various procedures suggested for the preparation of toxins and immune serums. Thus under *B. welchii* the newer researches on the relation of this microbe to pernicious anaemia are dealt with at some length.

This work, however, cannot be regarded in the same light as the original monograph on anaerobes by Weinberg and Séguin, but, even allowing for this, there are several points to criticize in the volume. In the first place its value would undoubtedly have been raised had the authors been a little more critical; researches obviously of widely different merit are treated with equal respect. This tends to make the survey colourless and not quite what was to be expected from workers with so much experience in this branch of bacteriology. The volume also shows a great indifference to the correct rendering of names. Moreover, there are a certain number of errors and omissions, as, for example, in dealing with the fermentation reactions as an aid to the differentiation of *B. chauvoei* from *Vibrion septique*, the authority cited is wrong, for the possibility of this was pointed out some

[2] *Données récentes sur les microbes anaérobies et leur rôle en pathologie.* Par M. Weinberg et B. Ginsbourg. Monographies de l'Institut Pasteur. Paris: Masson et Cie. (Roy. 8vo, pp. 291. 35 fr. sans majoration.)

five years earlier in Report No. 12 of the Medical Research Council. No mention is made of the occurrence of *B. chauvoei* in human lesions, although a good deal of discussion has centred round this question.

A summary at the end states in general terms the most salient features of the works quoted. But we cannot agree with the view that the exact identification characteristic of *B. chauvoei* has not yet been settled, because the features of this anaerobe were clearly given in the two reports published by the Medical Research Committee (Council). The confusion that existed was due to the fact that *Vibrion septique* had not infrequently been mistaken for *B. chauvoei* owing to the former's presence in animal lesions, and also to the fact that the so-called Kitt strain of Rauschbrand circulating in Germany was, in reality, *Vibrion septique*. Again, the evidence brought forward in support of the view that *B. putrificus* is a separate identity is unconvincing. The authors have not attempted any form of systematic classification, which is perhaps wise in the present state of our knowledge.

This book, speaking generally, should prove of great value as a guide to the identification of the rarer types of anaerobic bacteria, and the authors are to be congratulated on having produced so important and useful a review of the subject.

BLUE SCLEROTICS AND FRAGILE BONES.

PART III of the second volume of the *Treasury of Human Inheritance*, edited by Professor KARL PEARSON, is devoted to the subject of *Blue Sclerotics and Fragility of Bone*.[3] The article is written by Dr. JULIA BELL. It contains, in the first place, a complete bibliography of the subject, which has evidently been carefully analysed by the author; secondly, a hundred pedigree diagrams, with very valuable descriptions of the members of each so far as they were obtainable, including details not only as to the occurrence of the two conditions under discussion, but also of all other associated anomalies; and, thirdly, a number of very fine plates illustrating the anatomy and clinical appearances of cases of blue sclerotics, fragilitas ossium, and osteogenesis imperfecta. The article embodies the whole of our present knowledge of the subject, and will take its place as the standard work of reference in future investigations.

In her introduction Dr. Julia Bell has drawn some interesting conclusions relating to the nature of the relationship between blue sclerotics and fragility of bone. Although the two conditions are relatively uncommon, they are well known owing to the distressing conditions exhibited in marked cases; for example, of one patient, suffering from fracture of the spine and ribs resulting from a fall, the family report that "they dare not take off the plaster lest she should fall to pieces," and an examination of some of the illustrations in the present volume shows that the fear could hardly be exaggerated in many cases. The presence of blue, or thin, sclerotics does not in itself produce any disability; the point of interest is whether, and how far, it carries with it a tendency to the graver condition of fragilitas ossium, and Dr. Julia Bell has addressed herself to the consideration of this problem in so far as the available material permits. It is only necessary to glance through the pedigree diagrams to satisfy oneself of the marked hereditary tendency to the occurrence of blue sclerotics; in No. 662, for example, the condition reappears in four out of five children and in eleven out of fourteen grandchildren. The importance of determining how far blue sclerotics predispose to fragilitas ossium is therefore obvious.

The theory has been put forward that there is a very close relationship between the two conditions; that, in fact, they are merely different expressions of a single anomaly—namely, an abnormally feeble development of the connective tissues throughout the body. Dr. Julia Bell is inclined to dissent from this view, and considers that it is more consonant with the facts to regard the two conditions as independent, but linked together in such a way that the factor leading to the production of blue sclerotics merely predisposes to a faulty bone production. The theory of a double anomaly is suggested by the fact that there is no direct relationship between the severity of the two conditions, for very blue sclerotics may be unassociated with other defects, while less blue sclerotics may accompany a history of repeated spontaneous fractures. A further important conclusion drawn by the author is that in pedigrees showing associated defects of blue sclerotics, liability to fracture and deafness, the presence of blue sclerotics determines the addition of one or both of the allied defects in the descendants affected. In other pedigrees both conditions may occur independently in a hereditary form without blue sclerotics. Among the adult population of individuals affected with blue sclerotics approximately 60 per cent. have an associated liability to fractures, approximately 60 per cent. have an associated deafness, and 44 per cent. suffer from all three defects.

In enumerating the merits of Dr. Julia Bell's work we must not fail to mention the charming coloured portrait of "Peggy with the Blue Sclerotics," which forms the frontispiece to this attractive volume.

[3] *The Treasury of Human Inheritance.* Edited by Karl Pearson, F.R.S. Eugenics Laboratory Memoirs, XXIV. Francis Galton Laboratory for National Eugenics, London. Volume II: *Anomalies and Diseases of the Eye* (Nettleship Memorial Volume). Part III: *Blue Sclerotics and Fragility of Bone.* By Julia Bell, M.R.C.P. London: Cambridge University Press; H. K. Lewis and Co., Ltd., and Wheldon and Wesley, Ltd. 1928. (Roy. 4to, pp. v + 269–324; illustrated. 36s. net.)

GONORRHOEAL ARTHRITIS.

A LARGE monograph of over five hundred pages on gonorrhoeal arthritis[4] has been written by a French surgeon, M. HENRI MONDOR. It is unusual for this disease, in Britain at least, to be treated by the surgeon, except to correct late deformities, and after medical treatment has come to the end of its resources. It is therefore interesting to read a surgeon's views on the disease as seen in all its stages, and to consider his summary of the forms of treatment which afford relief. M. Mondor declares definitely his hatred for the term "gonorrhoeal rheumatism," which he considers a poor and misleading name for one of the most severe and most destructive forms of acute arthritis known. He states that he has seen joint damage and destruction produced by the gonococcus in a few weeks such as the tubercle bacillus might take years to bring about. He draws attention also to the intensity of the pain in affected joints which surpasses in severity that of any of the other acute joint diseases.

Two interesting tables are given—one from the collected experiences of others and one from the author's personal records—to show which joints are most frequently involved. The knee-joints easily come first in frequency, and the wrist-joints second. Next in order of frequency come the os calcis, the cervical vertebrae, and the hip-joints, but the list seems to include almost every joint in the body. A full account of the pathology of the affected joints is given, especially of the destructive changes in cartilage and bone which may lead to ankylosis or to subluxation and dislocation of the joint. It is evident that of all the serious results the tendency to ankylosis is the worst; and in certain joints such as the wrist ankylosis is practically the rule. All the varying forms of treatment by drugs, vaccines of different kinds, and antiserums to the gonococcus are discussed, and the conclusion is reached that little trust can be put in any of them. M. Mondor is equally candid in admitting that surgical intervention, especially incision of the joint (arthotomy), is uncertain as a cure, and may be followed by progressive ankylosis and joint destruction just as after treatment by any of the other suggested remedies. What he does claim for surgery is immediate relief from the agonizing pain, rapid cessation of fever, and an immediate improvement in the patient's general condition, such as is effected by no other means.

Orthopaedic measures which may be necessary to correct gross deformities in old-standing cases are not considered in detail in the book, which concentrates on what can be done for the relief of the acute disease and the prevention of joint destruction. The drawings illustrating the pathology of the disease in joints are good, but many of the x-ray pictures are so poorly reproduced that they are quite useless to the reader, even when assisted by the descriptions given below them.

[4] *Les Arthrites Gonococciques.* Par Henri Mondor. Paris: Masson et Cie. 1928. (Roy. 8vo, pp. 527; 121 figures. 70 fr. sans majoration.)

OPERATIVE SURGERY.

DR. J. SHELTON HORSLEY, of St. Elizabeth's Hospital, Richmond, Virginia, has lately published a third edition of his *Operative Surgery*.[5] The work serves a twofold purpose: it considers in detail the physiological and biological factors which underlie surgical procedure, and it affords a useful record of the author's personal operative experience. "Some Surgical Operations" would appear to be a more accurate title to the work, for the operations described belong to only two categories: those performed by the author, and those he personally regards as best adapted to the condition under consideration. The work must therefore be judged as one for post-graduates with a knowledge of surgery rather than as a textbook that would guide a candidate through the final fellowship examination.

All surgeons must perforce develop tendencies according to their interests and opportunities, concentrating on some aspects of surgery and paying less attention to others. Dr. Horsley shows in his book that he is no exception to this rule. For instance, undue space would appear to be given to plastic surgery and repair of aneurysms, to both of which excellent chapters are devoted, compared with the relatively slight treatment of such subjects as the ligation of arteries and amputations. The style in the chapters devoted to these latter is somewhat lax; precise landmarks for incisions are lacking, and in the general context there is an undue preponderance of "ifs." We do not think there would be any general agreement with the view expressed in the chapter on neurological surgery as to the use of fat grafts in operations for epilepsy; nor would we all agree with the author's opinion that the dura should be sutured in every spinal operation. In operating for peptic ulcer Dr. Horsley performs pylorectomy by stitching the duodenum to the lesser curve and leaving the "dangerous angle" below.

The illustrations to the book are excellent and numerous; the subject-matter is well up to date, and readers will find much of interest and profit within its covers.

NOTES ON BOOKS.

WE have received two short handbooks on the injection treatment of varicose veins. In *The Treatment of Varicose Veins by Intravenous Injections*[6] Dr. J. D. P. MCLATCHIE describes briefly the procedure and gives various practical hints. A good bibliography is appended. Dr. R. THORNHILL contributes a volume to the Minor Monograph Series on *Varicose Veins and their Treatment by "Empty Vein" Injection*.[7] The apparatus and technique are indicated and some illustrative cases are recorded. In a foreword Sir BERKELEY MOYNIHAN commends this method as a simple, safe, and quick device.

Dr. STRICKLER of Temple University, U.S.A., has produced a sound textbook on dermatology.[8] All the usual subjects are included and dealt with in an efficient manner. We have noticed no serious omission, although some of the chapters are rather scrappy. The chief novelties we have discovered are the diagnostic tables for those diseases of the skin, such as eczema, psoriasis, lupus erythematosus, etc., which are notoriously liable to give rise to difficulties of diagnosis, and many will doubtless find these schematic representations of the critical points of differentiation quite useful, although it must be remembered that there is no short cut to successful diagnosis and nothing that can be substituted for the daily work of examining and treating patients. Apart from this there seems no real reason why this textbook should have been written, seeing that there are already more than enough excellent textbooks on the subject. Dermatologists would be much better employed in writing monographs on special departments or diseases than in compiling general treatises which, although they often show signs of original and personal observation in some section which may happen to appeal especially to the author, must in the nature of things be principally drawn from previously existing works. No man can reap a good crop from the whole vast field of dermatology. Having entered this criticism we may add that Dr. Strickler's textbook is at least equal to most others. It is well got up and adequately illustrated. Most of the illustrations are good and clear, but there are a few which are not up to the general standard, and should be improved in the next edition, which will no doubt be called for in due course.

In continuance of its policy of encouraging post-graduate study, the Dental Board of the United Kingdom arranged, during the winter of 1927-28, a course of four lectures on *Radiology and Radio-therapy*,[9] which are now published under one cover. The physics of radiology are dealt with by Dr. G. W. C. Kaye, superintendent of the Physics Department, the National Physical Laboratory; instruments and apparatus, their construction and purpose, and radiographic technique by Dr. Robert Knox; the interpretation of dental skiagrams by Mr. H. M. Worth; and ultra-violet ray treatment by Professor Leonard Hill. The lectures maintain the high standard which the Board requires, and that by the late Dr. Knox will be especially valued, both for its technical value and as a memento.

SADTLER'S *Chemistry of Familiar Things*[10] is a book for the casual reader who, knowing nothing of chemistry as a science, would yet acquire some of the knowledge possessed by chemists. The author, an American writer, has avoided technicalities as far as possible, and has accordingly encountered the inevitable difficulty of conveying clear impressions without them, but he has mastered the difficulty in his own way, and very successfully; for, although his discourse contains many allusions to matters which are left unexplained, the main course of the text is easy to follow. It covers a broad range dealing with the relationships of the elements, natural phenomena, industrial and physiological chemistry, foods, and hygiene. A good deal of useful information is given about the percentage composition of foods and other data, as well as sundry matters of curious interest, such as directions for silvering glass. It is altogether a readable and instructive book, but we must protest at the sentence which reads: "A German physicist, Robert Mayer, found a value that constituted the mechanical equivalent of heat." Surely the name of Joule is not unknown in America.

The Very Thing,[11] by FFRIDA WOLFE, is essentially curative, and it may therefore be said to have established a claim for notice in the austere columns of a medical journal. We are all called on to deal with fractious children every now and then. Here is a remedy. The delightful child verses, read aloud by the right sort of mother or aunt, are guaranteed to cure the very worst case of fractiousness. Little woodcuts by Elizabeth Rivers add to the attractions of a charming nursery book.

[5] *Operative Surgery*. By J. Shelton Horsley, M.D., F.A.C.S. Third edition. London: H. Kimpton. 1928. (Sup. roy. 8vo, pp. 893; 756 figures. 63s. net.)

[6] *The Treatment of Varicose Veins by Intravenous Injections*. By J. D. P. McLatchie, M.D., C.M.Ed. London: W. Heinemann (Medical Books) Ltd. 1928. (Cr. 8vo, pp. vii + 51; 1 illustration. 3s. 6d. net.)

[7] *Varicose Veins and their Treatment by "Empty Vein" Injection*. By Ronald Thornhill, M.B., Ch.B. With a foreword by Sir Berkeley Moynihan, Bart., K.C.M.G., C.B., M.S. Minor Monograph Series. London: Baillière, Tindall and Cox. 1929. (Cr. 8vo, pp. xi + 64; 1 figure. 5s. net.)

[8] *Textbook of Diseases of the Skin and Syphilis*. By Albert Strickler, M.D. Philadelphia: F. A. Davis Company. (Med. 8vo, pp. xxi + 689; 218 figures, including 6 plates. 8 dollars net.)

[9] *Radiology and Radio-therapy*. Four lectures delivered under the auspices of the Dental Board of the United Kingdom, 44, Hallam Street, London, W.1. 1928. (Roy. 8vo, pp. vii + 92; illustrated. 5s. net.)

[10] *Chemistry of Familiar Things*. By Samuel S. Sadtler, S.B. Fifth edition, revised and enlarged. London: J. B. Lippincott. (Demy 8vo, pp. xiii + 336; 6 figures, 23 plates. 15s. net.)

[11] *The Very Thing: Read-out-able Rhymes for Children*. By ffrida Wolfe, with woodcuts by Elizabeth Rivers. London: Sidgwick and Jackson, Ltd. 1928. (5½ × 8¼, pp. xiv + 110; illustrated. 6s.)

PREPARATIONS AND APPLIANCES.

MENISCOTOMY KNIFE.

MR. H. A. T. FAIRBANK, D.S.O., M.S., F.R.C.S., writes: Accurate division of the posterior end of the so-called bucket-handle lesion of a semilunar cartilage, close to its attachment to the bone, is difficult or impossible with a straight tenotome or other knife. The advisability of dividing the cartilage close to the tibia arises from the occasional finding of a tag at the back of the joint, with its sole attachment to the rest of the cartilage close to the bone. To avoid such a tag being missed the dividing knife must cut close to the bone in an oblique plane. The curved end of a

FULL SIZES

Macdonald's dissector has been found a useful instrument for determining the precise direction in which the knife should cut. Messrs. Allen and Hanburys have made for me a knife with a similar curve, a probe point, and a short cutting edge, and this has been found to answer the purpose admirably. Since it is wiser not to use a double-edged knife inside the knee-joint, the knives are made in pairs, to cut to the right and left respectively. Experience has shown that these knives are sometimes useful in knee-joint surgery for purposes other than that for which they were designed.

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SATURDAY, JANUARY 12TH, 1929.

CITIZENSHIP AND CIVILIZATION.

SINCE 1902 the Yale University Press has been publishing at intervals in book form the Yale Lectures on the Responsibilities of Citizenship. The latest of the series is *Citizenship and the Survival of Civilization*,[1] by Sir George Newman, and it is described as being based upon the Dodge Lectures he gave last year at Yale University. The text is doubtless modified and amplified a little from what was actually spoken, and the prologue and epilogue, each of notable beauty, are probably new. The whole volume is such as the medical profession and the thoughtful reading public have now learnt to expect from Sir George Newman—scholarly, well arranged, suggestive, and enlightening. The field surveyed is immense, almost all-embracing, and to have accomplished so much in little more than two hundred pages, with sufficient breadth of view to make it comprehensive, with sufficient system to make it intelligible, yet in sufficient detail to make it interesting and practical, is no small achievement.

Sir George Newman's political philosophy, expounded as the basis of his position and traced from its more remote origins, is not that the individual exists for the sake of the State, which is the fundamental creed of Fascism; or of the Class, which is that of Communism, and, in practice, of too many socialists, though not necessarily of Socialism. It is rather that of T. H. Green, who "believed in the essential work and divinity of the individual, upon whose moral and spiritual growth everything depended; behind the individual was the State, an organization for the liberation and education of this moral individual; behind the State he visualized an eternal mind or supreme consciousness which reproduces itself as human personality"; and who claimed that "good consists in the realization of personality which can only be reached in some society of persons who, while remaining ends in themselves in the sense that their individuality is not lost but rendered more perfect, find perfection only attainable when their separate individualities are integrated as parts of a social whole; the law of our being, therefore, involves the growth of personality with civic and communal duties." Citizenship is regarded as a number of different but not incompatible loyalties, harmonized in one living common interest which makes human life purposive instead of undirected or misdirected. These harmonized loyalties to self, family, profession or trade, locality, State, are leading on to a yet wider culture based on moral aims, which is civilization. There man's higher nature, its cultivation, emancipation, and use in service, will be completed. The two immediate needs for this further advance are education and civic mutual aid. In practice three things—internationalism, industrial co-ordination, and social insurance—will take us a long way on this road of civic mutual aid towards cultural civilization; and in education the chief requirements are physical nurture as the basis, a social and intellectual curriculum, the free but suitable occupation of leisure, and the continued education of the adult.

Meanwhile, in the body politic there are only too evident vestiges of a different philosophy—the dominance of the economic factor in society, the materialistic measurement of success and interpretation of history, the extravagant claims of the superman, the apotheosis of force. These incompatibilities have to be removed more or less drastically, and there are a large number of other disharmonies which have to be reconciled in order to accomplish or complete the emergence into civilization. Such are those due to the over-population of localities and to the mixture of races, those which in the body and mind of man arise from physiological neglect and a misunderstanding of eugenics, those connected with maternity and infant upbringing, and those due to unwisdom in personal hygiene, whether bodily or mental.

Sir George Newman has a very interesting chapter on "Disease in history," which contains lessons for the historian, the sociologist, and the general reader. Here, more perhaps than anywhere else in the book, does the author direct his erudition and his idealism to the service of practical ends. He founds his faith in the future of preventive medicine on the growing synthesis of mutual aid, communal co-operation, and mental development. "Our objective," he says, "must be not a longer life only but a better one—an enlarged, enriched, emancipated life, full of work and search, inspired by loyalty and hopefulness, with a forward-looking mind." It is in this spirit that the whole of the book is conceived. If, here and there, the smooth steps of the discourse seem to halt a little, or if the exact logical reason for fitting some section into its particular niche escapes us, the work, both as a whole and in its several parts, is a fine scientific and literary accomplishment.

[1] *Citizenship and the Survival of Civilization.* By Sir George Newman, K.C.B., M.D., LL.D. New Haven: Yale University Press; London: Milford, Oxford University Press. 1928. (Post 8vo, pp. 254. 11s. 6d. net.)

FRACTURES NEAR THE WRIST.

Two years ago we discussed a paper by Mr. Harold C. Edwards on backfire fractures, in which were set forth the particulars of forty-two cases treated in the fracture department of King's College Hospital.[1] A study of these cases went to prove that backfire fracture is not a clinical entity; that is to say, that it is not to be distinguished clearly from other fractures of the radius, and that the nature and exact site of the injury appear to vary just as much as they do in other fractures in this region. This is hardly surprising seeing that, as Mr. Edwards has pointed out, backfire fractures are not all produced in the same way, for some are due to indirect and some to direct violence, while the mechanism of some others is obscure. In their paper on fractures of the lower end of the radius in adults, which appears at page 61 in our present issue, Mr. Edwards and Dr. E. B. Clayton describe and discuss 424 cases of fracture, among which are included various fractures of the radius, but of which the vast majority are Colles's and backfire fractures. As these cases were all treated at King's College Hospital in the three years 1924–1926, we may assume that the forty-two previously recorded cases are among them, as well as forty-two other backfire injuries.

The sex incidence of these injuries is interesting, for while only one backfire fracture was suffered by a woman, 250 of the 339 cases of Colles's fracture—that is, nearly three-quarters—afflicted the female sex. Indeed, Colles's fracture might almost be called the "women's fracture," since the male sex suffers fracture of other parts of the body far more often

[1] *Journ. of Bone and Joint Surgery*, vol. viii, No. 4. (Old series vol. xxiv, No. 4, Boston, Mass., October, 1926, p. 702.)

than the female. These statistics bring out also the prevalence of a backward tilt of the lower fragment in the vast majority of impacted Colles's fractures, and the authors of the paper rightly lay great stress on the importance of correction of this angular displacement, which, if allowed to remain, upsets the whole modus operandi of the joint. Correct replacement of the joint surfaces in their normal relation to one another is of far more importance than restoration of the exact contour of the shaft of the radius; indeed, without the former a good functional result is not to be hoped for.

There has been some difference of opinion among surgeons as to the importance of anatomical correction in fractures, which may perhaps be explained by supposing that they have not all meant the same thing by this term. In a discussion on the treatment of recent fractures by operation, held last spring in the Orthopaedic Section of the Royal Society of Medicine,[1] two most distinguished surgeons expressed different opinions on this matter, Dr. Charles Scudder of Boston saying that exact anatomical correction was of the first importance, while Sir Robert Jones maintained that a good functional result was the ideal to be aimed at, no matter what deformity persisted. Yet no surgeon has insisted more upon the importance of accurate anatomical correction of Colles's fracture than Sir Robert Jones, and, as Mr. Edwards states, good end-results are only to be hoped for when his teaching is strictly followed and the backward tilt of the lower fragment of the radius converted into the slight forward inclination which is anatomically normal. We take it that any apparent discrepancy in the views of two such eminent and experienced authorities on this matter is not real. Both would agree that in fractures involving joints or disturbing their alignment the most exact anatomical correction is desirable, and neither would deny that in fractures not involving interference with articulations a thoroughly good functional result is often compatible with some gross deformity, which it is not necessary to correct by operation.

The statistics of these 424 cases are of considerable interest, yet, like all statistical statements, they might mislead if not carefully interpreted. For instance, they might be taken as showing that the goodness of the end-result was in inverse ratio to the length of splint treatment, yet this inference is at once upset when we reflect that the less serious cases were the soonest released from splints. Extended experience seems to have confirmed the opinions as to the value of massage and the stage at which it should be used, which Mr. Harold Edwards expressed in his former paper. He and Dr. Clayton designate 12 cases, or 3.7 per cent. of the total, as bad results, and present them in tabular form. This table is very instructive as an indication of what to expect. Three of these cases had osteo-arthritis before the injury, others were old cases or unusually severe. Among these 12 were 2 cases of double Colles's fracture, in each of which there was a perfect result on one side but an imperfect result on the other, and this difference was in each case clearly due to insufficient correction at the outset. In falls on the hand, such as caused the 339 Colles's fractures, the force is not all expended on the wrist and forearm, but considerable violence may also reach the shoulder. We are therefore surprised to find no mention of obvious shoulder injury, although it is stated that early in the physiotherapeutic treatment the shoulder movements are tested. It would be of interest to know whether in any case shoulder-joint trouble of late onset occurred, such as some surgeons have attributed to contusion of the cartilage of the glenoid cavity.

This paper is most instructive, and it deserves careful study by all who have to treat fractures. Such a piece of work shows the value of a fracture department of a general hospital, and its publication gives us an opportunity of expressing once again our hope that the example of King's College Hospital, and of some other hospitals in the provinces as well as in London, will be generally followed as regards the treatment of fractures.

[1] *British Medical Journal*, April 14th, 1928, p. 636.

INFLUENZA.

THE Ministry of Health has issued to sanitary authorities in England and Wales a circular (No. 955) bringing to their notice the fact that during the last few weeks a very rapid spread of influenza has been reported from the United States and Canada. It is therefore considered advisable to call the attention of local authorities to the revised Memorandum on Influenza (Memo. 2/Med.) which was issued to them in January, 1927, when an epidemic of influenza occurred in this country after other countries had suffered a similar visitation. This memorandum, which contains the principal considerations to be taken into account by local authorities in the event of a sudden increase in the prevalence of influenza, was the subject of a leading article in our issue of January 29th, 1927 (p. 202), when we commended it to the notice of all concerned. It deals concisely with the history and nature of the disease, describes suitable measures of personal protection, and gives details of the action to be taken by sanitary authorities to combat outbreaks. The concluding sentence states: "The most important services . . . consist in the organization of the available nursing service and the provision of assistance to influenza-stricken households." In the Ministry's circular local authorities are reminded that in the event of an outbreak the Minister's general sanction has already been given to the provision by them of medical assistance (including nursing and the dispensing of prescriptions) for the poorer inhabitants of their districts who are suffering from the disease. Copies of the memorandum may be obtained from H.M. Stationery Office, or through any bookseller, price 2d. net. The recent epidemic which swept through the United States has led to the appointment by the Surgeon-General of a special sanitary board to advise the public. In Berlin, according to press reports, a very widespread epidemic of mild influenza is being experienced. It is stated that the hospitals can admit no more than about 35 per cent. of the cases reported to them by the sick funds, and that only those cases complicated by pneumonia are being accepted. One estimate of the numbers affected places the total at about 100,000 in the city, and about 4 per cent. of the employees in the municipal offices are believed to be suffering from the disease.

THE DOCTOR AND THE NEXT WAR.

BRITISH faith in the possibility of "muddling through" in all conceivable circumstances has received many rude shocks since the end of the nineteenth century, when this complacent doctrine was most widely accepted, and it seems reasonable to suggest that after four years of war and ten of troubled peace the general lack of interest in "preparedness" arises rather from a feeling that human foresight is vain in the face of fate than from any deep confidence in our ability to master the course of events as they arise. Dr. Leonard P. Lockhart of Beeston looks with some concern on the ostrich-like policy of hiding our heads in the

hand at the mention of anything connected with war, and of ignoring the new problems of national defence; he has accordingly devoted himself to a study of the situation to be faced by the civil population in the event of its exposure to gas attacks from the air, and has set forth the results in an article entitled "Chemical warfare and the medical profession" in the January number of the *National Review*. Dr. Lockhart makes no claim to originality, and at least one of his points—that treaties and conventions and protocols offer no definite security against the use of gas—will probably be generally accepted. His second point (based in great part on the argument in Mr. J. S. B. Haldane's *Callinicus*), that poison gas is a less cruel and less disabling weapon than shrapnel and high-explosive shells, is one on which many members of the medical profession who saw active service in the war will be in a position to pass a reasoned judgement. Dr. Lockhart finds statistical corroboration for this view in the fact that towards the end of the war, when troops were adequately protected and trained in anti-gas measures, the mortality among casualties from high-explosive shells was 25 per cent., while among gas-shell casualties it was only 3 per cent. He is anxious, however, to emphasize the great demoralization likely to be caused by gas attacks—and, it might be added, by the immediate threat of gas attacks—and to urge that the public must be educated in the need for, and means of, defensive organization. It is his considered opinion that "gas is going to be used in the next war for precisely the same reason that the Chicago police use it—it works." Dr. Lockhart argues in effect that the advantages which it offers as a weapon will make the temptation to use it irresistible. The ease with which civil chemical plant can be converted for the production of "war" gas, the facility with which commercial aircraft can be equipped to launch it in enemy territory, and the possibility of employing this mode of attack immediately war has been declared, give it the ideal military quality of surprise. The fourth element, with which he is most closely concerned, is the dilemma in which civilian medical and hospital authorities will find themselves when faced with an aerial gas attack in their area with little or no previous warning. He pleads, therefore, for the instruction of the public, so that they may realize that with proper measures they will have little to fear, and for the preparation of defensive schemes. He then reviews the modern chemical agents used in war, and gives a summary of a suggested defence scheme formulated by Squadron Leader A. P. Lawrence, director of medical services in the Royal Australian Air Force. This scheme embodies much useful information about practical anti-gas measures, and outlines the framework of a civil anti-gas organization. It is assumed that "gas masks for all" is an impracticable suggestion, and that political considerations will in time of peace prevent the wholesale dissemination of information among the public. All local authorities, and police, fire brigades, and medical personnel, should, it is suggested, be carefully instructed in their duties, and should be informed of their place in the defensive organization. In the proposed system of control the main executive authority is placed upon the chief constable in each area, the medical officer of health being in a position of great responsibility with the duties of co-ordinating ambulance and hospital services, instructing the staffs in their duties, arranging for protected buildings in congested areas, providing for "decontamination," and securing the purity of food and water supplies. It is suggested that consideration of the possible results of an attack may lead to the removal of hospitals from central urban areas. Dr. Lockhart believes that civil gas defence as a branch of State medicine will sooner or later become part of the medical curriculum, and contends that in the meantime nothing can relieve the medical profession from the duty of being ready to treat the casualties of chemical warfare. It may well be questioned, however, if the proposed organization will necessarily be as effective as Dr. Lockhart suggests. Dr. Lewin, toxicologist to the University of Berlin, at a recent conference convened at Frankfurt by the Women's International League for Peace and Liberty, stated that there were to-day twenty-five varieties of poison gas against which all antidotes and protective measures were virtually valueless. He was supported in this view by Dr. Steck, chief of the Swiss Federal Office for Protection against Gas, and by Herr Nestler, a German gas officer during the war, who said that all forms of defence of the civilian population were either too expensive or inadequate, or both. Dr. MacCartney, speaking at the same conference, shifted the responsibility for prophylaxis from the doctor to the chemists. The chemists, he said, were responsible for the production of poison gas; the protection of the public against its ravages was therefore primarily their concern. The remedy he suggested was that the chemical industries should be subjected to control. From these views some may draw the pessimistic conclusion that in face of chemical warfare medical science is likely to prove of little avail; most doctors will rather conclude that there is need for redoubling their efforts to discover means by which the effects of the new weapons of warfare may be successfully countered. In the words of a writer in the *Journal of the American Medical Association*: "Human protection and relief cannot complacently await the millennium, when warfare will have been relegated to the background of antiquity and abandoned atrocities."

THE MARCH OF PHYSICS.

EVERY year the Physical and Optical Societies unite for an exhibition of recent developments in their respective fields. The exhibition this year, which was held at the Imperial College of Science, South Kensington, from January 8th to 10th, was the largest in the nineteen years' history of this event. It was divided nominally into two sections—one research and experimental, the other trade. In actual fact the methods and results of recent research in physics were illustrated as elaborately in the exhibits of some of the commercial firms in the trade section as in those of the National Physical Laboratory in the other. Looking round the exhibition one got an impression that the present "push" in physics is in the extension of the domain of the ear rather than of the eye, for everywhere the wireless loud-speakers, the automatic gramophone, and the public speech amplifier were roaring like giants. Yet the optical exhibits, quiet as they are in comparison, never cease to fascinate, and here was an array of microscopes and telescopes, epidiascopes and cinematograph projectors, photographic lenses and prism binoculars, more highly specialized than ever. The historical section, with its relics of some of the old opticians, was as engrossing as usual, and the Wheatstone stereoscope was still an attraction. Among the exhibits were a number of photomicrographs, chiefly of biological and histological subjects, the work of Dr. C. L. Martin and Mr. Johnson, taken by ultra-violet illumination through an optical system entirely of quartz. Dr. E. W. Scripture, now professor of experimental phonetics in the University of Vienna, showed interesting apparatus for the registration of speech, including some charts illustrating the speech in various conditions of aphasia and dysarthria. By his apparatus both the fine vibrations, which are transmitted and heard in the voice, and the mass air movements, which are not transmitted or heard, are made to move a diaphragm of oil-silk, the vibrations of which are registered on the moving surface of a recording drum. Such substitution of accurate measurement for the somewhat vague judgements of the ear has obvious educative value; it may even find diagnostic

application. The large exhibit of the Meteorological Office included a sky photometer for determining the visual intensity of daylight during gloomy periods, such as those accompanying high fogs; an instrument called a psychrometer, for measuring temperature and humidity on aeroplanes used for meteorological observation; and a wind direction recorder actuated by electricity.

OUR HOMES.

THE architect does not often resort to the pen; he is mostly content to let his work make its own appeal. And whose work has a greater and more lasting appeal than that of the good architect, or whose work brings down upon his memory more anathemas from those who have to put up with it than the work of a bad architect? Mr. Gordon Samson is both an architect and an author. His latest book, *Houses Planned for Comfort*,[1] is designed to make a special appeal to our profession. "Many, probably most, of us," he says, "can never repay the debt we owe to those kindly wizards called doctors, who, called in when we are ill or broken down, mend us with marvellous skill and send us on our way—more or less rejoicing. But the houses in which we live generally work against, and not with, the efforts of our kind wizards (through faults and omissions which could easily be avoided in the initial planning of every house), and this to such an extent that when old age or chronic illness overtakes—as sooner or later it always does overtake—some member of the family, much that the doctor could do in prolonging the life and powers, the usefulness and happiness, of the patient is frustrated by the fundamental faultiness of the arrangement of most houses." The aim of this book is to show how, with a little care and forethought, these faults can be avoided. The directions are sound and eminently desirable of attainment. But, alas! the world is not large enough for all of us to attain these advantages. "Where the subsoil does not happen to be rock, gravel is the best. Clay, as it retains the water, is the worst, in that respect, that you can build on." If clay be barred, then we must pull down most of London, and much of England, for the clay is always with us. We have learned of the virtues of the southern aspect, and lament that so many delightful old houses, so desirable in their dignified antiquity, show that our forefathers cared for none of these things. But when the author advises his readers to "avoid building on sites where the sunshine could, at some future date, be cut off from you by high buildings or by high trees," we feel we must migrate to the illimitable spaces of the high veld of South Africa, for this security cannot be found by those who have to work in England; not even is the social Olympus of Park Lane exempt from such dangers. Mr. Samson is at his best in his exposition of the internal fittings of houses, and there is much sense in his plea that at least one bedroom in every house should be so fitted that it can be used effectively as a sickroom in case of need. There still lingers a preference for being at home rather than at "a home" when one is sick, and every doctor must have deplored the inadequacy of the otherwise well-provided house in respect of the simplest conveniences for nursing. Mr. Samson shows how this lack may be supplied with ease, though we are not entirely at one with him in his love of electrical gadgets, for when these are not in constant use they are apt to be out of order when wanted. This is a book well worthy of study, and the illustrations make it intelligible to the least technical of readers. It is dedicated to the memory of Dr. George Charles Bright, who died at Cannes in 1922, aged 82 years.

[1] *Houses Planned for Comfort, and with Special Conveniences for Invalids and the Aged.* By G. Gordon Samson, Architect. London: Crosby Lockwood and Son. 1928. (6 × 9¾, pp. xv + 191; 8 plates. 8s. 6d. net.)

QUACKS OF OLD LONDON.

IN a pleasantly written and well-illustrated volume Mr. C. J. S. Thompson, lately of the Wellcome Historical Museum, who is the author of a number of other interesting books dealing with certain aspects of medical history, tells the story of *The Quacks of Old London*.[1] Human nature and credulity remain much as they always were, and so the conditions have ever been favourable for mystery-mongering and quackery; but in the Middle Ages there was no real line between the regular practitioner and the pretender to the art of healing. Little is known about the quack doctors who began to flourish here about the sixteenth century, in spite of the Act passed in 1511 in order to suppress them. Two centuries later they were enjoying their golden age in this country, which has been called their paradise; it was then that one of them, William Read, was sworn-oculist to Queen Anne, who knighted him in 1705, and to George I. Roger Grant and John Taylor, "ophthaliator," in due course succeeded Read as quacks in this line of advertised activity. A royal protégé, Joshua Ward, was so successful in curing the pain in the thumb of George II that he received a vote of thanks from the House of Commons, and was protected from any interference by the College of Physicians with his practice. The account of Mrs. Mapp, or "Crazy Sally," the bone-setter, who was "all the cry" of the town at one time, but took to drink and died miserably near Seven Dials, is enlivened by some contemporary verses in her praise. Instances of the absence of honour among quacks are given: for example, Mrs. Phillips of the "Green Canister" in Half Moon Street, Strand, made a fortune by selling contraceptives and retired; a rival then personated her, and when the real Mrs. Phillips returned to the trade there was a struggle of advertisements. Early in the sixteenth century the Royal College of Physicians was founded, with a charter conferring powers to summon quacks before it and imprison them; but though these powers were exercised the evil grew all the same. Mr. Thompson traces the history of quackery from Tudor times to the end of the eighteenth century, giving many examples of the activities of charlatans and their bills of advertisement. Moses Stringer, who appears to have knighted himself, proclaimed that his *Elixir Renovans* would cure old age and the gout; like Mrs. Phillips, a rival spread abroad the announcement of his death, and so led to the not unnatural protest on Moses's part that the announcement was premature. This interesting "Who's who" of metropolitan quacks of a bygone age—and they have too many present-day successors—contains also accounts of bagnios, cuppers, and beauty specialists, and is a book the public would do well to read, mark, and inwardly digest.

JEWISH HEALTH ORGANIZATION.

THE fourth annual report of the council of the Jewish Health Organization of Great Britain is a document entirely without frills. It presents a terse, almost laconic, statement of the work of the various committees of the organization during the past year, but makes no attempt to point a moral or adorn a tale. The organization promotes health education by means of lectures and publications, by instituting an annual Health Sabbath in connexion with the Health Week of the Royal Sanitary Institute, and by arranging health exhibitions. It has set itself the task of studying systematically the health and diseases of Jews and non-Jews with a view to discovering what, if any, are the factors of race and of custom determining the differences in the incidence of certain diseases. To this end Dr. M. Sourasky has investigated cancer diseases among Jews,

[1] *The Quacks of Old London.* By C. J. S. Thompson. London: Brentano's Ltd. 1928. (Demy 8vo, pp. xvi + 356; 35 illustrations. 12s. 6d. net.)

and has produced evidence, first submitted to the International Cancer Conference in July (*British Medical Journal*, July 26th, p. 171), suggesting that there is no reason to believe that Jews are either more or less liable to cancer than other races. On the other hand, the relative immunity of Jews from cancer in individual organs —for example, in the penis and the uterus—deserves consideration in relation to prevailing Jewish social and hygienic customs. A comparative study of visual defect in non-Jewish and Jewish children, undertaken by a committee of ophthalmic surgeons appointed by the council, showed that in a large group of boys in the East End of London the percentage of Jews with visual defect was about twice that of non-Jews. The committee believes that this difference is determined, not by intensive school work among Jewish children, but by a racial factor. The results of a carefully planned investigation of the comparative intelligence and attainments of Jewish and non-Jewish school children are also included in the report, and appear to bear out the common belief that up to the age of 13 the average mental ratio of the Jewish child is greater than that of the non-Jewish child, though investigations of groups of older children would appear to be desirable. An important activity of the organization is child care and guidance. Just over a year ago it established an undenominational child guidance clinic, and up to the time of the issue of the report had dealt with 63 cases. The clinic was open on 104 evenings, and during that period there were 309 attendances of patients. Those who know how much time must be occupied in the study and treatment of each individual case in such a clinic will realize what a record of work these figures indicate.

BIRTH CONTROL CLINICS

THE North Kensington Women's Welfare Centre gives advice on birth control to women unable to afford the fees of a private medical practitioner. The fourth annual report just published gives a record of work for the year ending July 31st, 1928, during which period 1,183 visits have been paid by patients to the centre at 12, Telford Road, Ladbroke Grove, W.10. The policy of this organization is to discourage women from using contraceptives until they have had at least one baby, and to suggest the advisability of having more than one. A medical supplement gives a useful account of the experience of the centre as to the relative efficiency of various contraceptive devices. In the preface to the annual report of the Society for the PROVISION OF BIRTH CONTROL CLINICS (153A, East Street, London, S.E.17) the fact is emphasized that in the distressed mining areas the infant population is still growing almost as rapidly as in times of prosperity. "There is no visible outlook in life for these children, and both husband and wife would be relieved of a heavy load of anxiety if they were taught sound methods of avoiding unwanted conceptions." This society, which now works through twelve centres in London, the provinces, and Scotland, aims at giving such instruction, and a noteworthy aspect of its work is the establishment of a clinic in a Midland mining area. The report observes further that many miners' wives attend the Glasgow clinic. During the year 3,914 new cases have been dealt with by the various clinics, 1,377 by the society's pioneer centre at Walworth, and there have been in addition 7,606 return visits (3,250 at Walworth). A recent analysis of the first 5,000 cases on the books at Walworth has revealed some matters of special interest. Of these 5,000 women, 315 were found to be pregnant on the first visit, and have not returned; 18 sought advice for sterility; and 32, of whom to date 31 have attained their wish, discontinued using contraceptives so as to have a baby. Many years must elapse, however, before any definite conclusions can be drawn as to the effect of the practice of conception control on the incidence of child-bearing among a given set of patients.

THE seventh British Congress of Obstetrics and Gynaecology will be held in Dublin on April 24th, 25th, and 26th, 1929, under the presidency of Dr. Gibbon FitzGibbon. The chief subject for discussion is "Disproportion," and there will, in addition, be numerous papers on matters relating to obstetrics and gynaecology. An exhibition of pathological specimens will be arranged. It is hoped to have a representative gathering from all parts of Great Britain and Ireland. Those wishing to read papers, and those who hope to be present at the congress, are asked to communicate as soon as possible with either of the joint honorary secretaries, Dr. Bethel Solomons, Rotunda Hospital, Dublin, or Mr. Gerald Tierney, F.R.C.S.I., 22, Lower Baggot Street, Dublin.

THE KING'S ILLNESS.

TAKEN as a whole, the brief bulletins issued from Buckingham Palace during the past few days have pointed to a slight but not negligible improvement in the King's condition, after seven weeks of an extremely acute illness. This is in accordance with the carefully worded estimate given in the medical communiqué of Wednesday, January 2nd, which appeared at page 31 of our last issue. With exhaustion of body and mind remaining so conspicuous a feature of the case, progress cannot but be slow and difficult. All that has been said in recent reports about the great weakness, the wasting, and the trouble with feeding will obviously hold good for some time to come; and therefore, as every doctor must realize, the position is still by no means free from anxiety. Early and smooth convalescence is out of the question after a streptococcal septicaemia associated with empyema in a patient well on in middle age.

No further communiqué has been authorized for publication in the medical press this week, but our readers will gather from what follows that His Majesty is making as much headway as can be expected at this stage of his long and grave illness. Since the beginning of the New Year the upward steps towards recovery have, we believe, outnumbered the steps down. The empyema wound is healing very satisfactorily, and the chest symptoms are now regarded as of secondary importance. We learn also that the pulse rate has improved and is less easily disturbed.

Estimations of the urea content and the calcium content of the blood, and other biochemical analyses, are being made at intervals by Professor E. C. Dodds, whose signature appeared on the evening bulletin of January 1st. We regret that in this matter, as in one or two others bearing on the King's illness, so much random speculation should have been indulged in of late by a few of our non-medical contemporaries. It contrasts unfavourably with the restraint of the newspapers as a whole throughout all the earlier and more trying phases of a situation without parallel in the history of the press. Irresponsible and wildly erroneous guesses are unfair to all those of our profession who are sharing the heavy task of attendance upon His Majesty, and not least to the colleague whose name has had this unsought publicity in connexion with one of the many therapeutic measures employed during the past two months.

THE HEALTH OF THE SCHOOL CHILD.

ANNUAL REPORT FOR ENGLAND AND WALES.

THE Annual Report for 1927 of the Chief Medical Officer of the Board of Education,[1] Sir George Newman, is a document of much interest, and it is one which should be read, not only because it is a storehouse of facts regarding the growing generation, but because it is inspired with a wide view of what is of the highest value in national well-being. It is a book that should be widely read, both by doctors and laymen.

The facts are derived from the examination of some two million children. In this country, where in normal times there is no conscription and therefore records of such massed medical examinations are lacking, there is no more convenient and comprehensive means of evaluating the health of the people than through the school children. But the true purpose of school medical work is not merely statistical; it is to ensure that the children shall be in a fit state of health to take advantage of the schooling provided for them. It is futile to spend vast sums of money on the education of pupils who are unable, on account of physical or mental defect, to reap advantage from it.

The report opens with a lively picture of the work of the school medical staff, first in a country school and then in a town school. To the casual eye of the untrained visitor the children in each school may seem blooming and healthy. To the trained eye of the doctor and school nurse, with their high standards of health and efficiency, are visible defects, both inherent and acquired, which are detrimental to the child. The systematic medical inspection of children is heavy and exacting work, but absolutely necessary. It is the grand inquest of the nation, the sole means of discovering and then strengthening the weak points of the individual child. By dealing with the individual the national health is built up. In former days the utmost ideal lay, in Milton's words, with the general "betterment of man's estate"; now the ideal is the betterment of man. Sanitation is surpassed by social evolution.

School medical work makes practicable a fuller education of the people as a whole; it adds to life "the joy of those who are healed"; it is the prelude of national efficiency. The science and art of medicine have contributed substantially, not to say immeasurably, to the higher evolution of school life. It was the apostles of medicine who demanded more warmth, light, and air in the schoolroom, who made evident the need for the practical teaching of hygiene, who proved that the child must be fed before it could be taught, who won for it the larger physiological interpretation of physicial training and of games, who said that the system of education must be adapted and modified for the defective child. Count up the thoughts with which these five scientific reforms have filled the heart of England, and consider what they are accomplishing in bringing "sweetness and light" into the child's schooldays, and still more into his after-days. This is a service of science "which is silently but certainly changing the prospects and hopes of the English people."

Physical Examination of School Children.

During the year under review 2,685,739 children had one examination—rather more than half the total in attendance; and besides these, no fewer than 1,719,844 re-examinations were made with the purpose of finding out whether or not the recommendations of the first examination had been carried out. There is little variation in the incidence of individual defects; defects of eyesight constitute approximately one-third of the total sum of defects, enlarged tonsils and adenoids a nearly equal proportion. The only appreciable increase has been in the incidence of enlarged tonsils and adenoids, of which the total numbers referred for treatment, both from routine and special inspections, considerably exceed those of the previous year. Such an increase does not necessarily mean any change in the physical condition of the children; it may well be due to the improved facilities for such treatment and, consequently, the greater readiness of medical officers to avail themselves of its advantages. With this exception there has been generally a very slight decrease in the numbers and proportion of children referred for treatment for most physical defects, aural defects, heart disease, tuberculosis, and deformities. There has been a perceptible decrease in the numbers of children found suffering from severe malnutrition, a decline of from 9.6 to 9.0 per 1,000 among children examined at routine inspection.

Some remarkable figures are given of the comparative findings of the examinations of groups of children in Liverpool and other cities, showing the differences between the averages for previous years and for last year. There is definite evidence of increase of height and weight. The school medical officer for London remarks: "The lessened number of children noted year by year as chronically absent from school is another proof of the improving health of the child population." This tendency towards improved nutrition and a higher standard of health appears to be general, though not universal. In London "the returns show that the children in the schools are better nourished than they have ever been before." Even in the industrially depressed areas of South Wales this tendency is felt. "The amount and nature of the evidence available," writes Dr. Jenkins of Rhondda, "justifies the opinion that if the year 1927 be taken as a whole, there has been during its course an appreciable and progressive improvement in the physical condition of the children attending the elementary schools." Dr. Pritchard of Aberdare found that, in spite of the great industrial depression, there was no increase in the numbers suffering from anaemia or malnutrition. Further, there is steady and satisfactory progress as regards personal cleanliness. The percentage of individual children found unclean in 1924 was 7.4; in 1925 it was 6.5; in 1926 it was 6.4; and for the year 1927 it was 5.6.

Provision for Treatment.

The report shows that the local education authorities are, generally speaking, fully alive to the needs of their areas. The most notable advance during the year has been the extension of provision for orthopaedic treatment. New schemes have been approved in respect of twenty-eight areas. Also new schemes for treatment by artificial light have been approved for twenty-six areas. The total number of clinics of all sorts at work last year in England and Wales numbered 1,520. Of these 936 provided treatment for minor ailments, 1,039 for dental defects, 579 for visual defects, 80 for tonsils and adenoids, 45 for the *x*-ray treatment of ringworm, 150 for orthopaedic defects, 26 for light treatment. The increasing popularity with parents and children of these centres is illustrated by the enormous growth of the attendances made by the children. In three Yorkshire cities the total number of attendances made at the clinics in 1914 was 123,039; in 1919 it was 323,990; and in 1927 the number was 663,305.

A new method of treatment for chronic nasal catarrh known as "diastolization" has been introduced by certain specialists in Paris, and has been subjected to trial in London and Liverpool. The essence of the treatment consists in massaging the unhealthy nasal passages by means of soft inflatable rubber bougies. It is reported that considerable improvement has resulted in the few cases that have so far been treated.

The success of ionization as a method of treatment for otorrhoea has led to its adoption by five additional authorities during the year; forty authorities now use this process. In eleven areas, 60.7 per cent. of cures are reported. Dental treatment is provided in 299 areas, an increase of five for the year; there are eighteen in which no provision has been made. It is recorded that three-fifths of the children examined and treated at each annual inspection

[1] *The Health of the School Child.* Annual Report of the Chief Medical Officer of the Board of Education for the year 1927. London: H.M. Stationery Office. 1928. Pp. 204. Price 1s. 6d. net.

are found to have some dental decay. But this fact taken by itself would create an entirely wrong impression. It is the amount and extent of decay that really matter, and these are not shown by the figures. But the figures indicate that a high proportion need some treatment year by year, and prove the necessity for continuous dental schemes. The value and efficiency of dental schemes are shown by the general improvement in the permanent dentition. In Cambridge, where there is an unusually complete dental scheme, it is found that there is a steady decline in the extraction of permanent teeth. The total worked out at one for every fourteen children examined, whereas in the country as a whole the proportion is rather more than one for every four children treated.

Artificial Light Therapy.

Approval was given during the year to schemes for treatment by artificial light in twenty-six areas; altogether forty-four authorities now have such schemes. It is evident that there is no decline in the popularity of this method of treatment, with its vivid appeal to the imagination; it is carried out at fifteen hospitals and twenty-six school clinics. Detailed reports of the results have been received from only a few medical officers. For the most part their reports have been confined to a statement of the numbers treated, with general comments on the results. This is a matter for regret. It is admittedly difficult and tedious to keep detailed and accurate records, but until this can be done on a fairly large scale, we shall not be in a position to estimate the value of the treatment for specific defects and ailments. The reports received suggest that, so far as school children are concerned, the chief benefit derived from artificial light may be attributed to tonic action. As regards any specific action on particular ailments evidence is generally conflicting and indefinite. Catarrhal cases are said to have done well in certain districts, but on the whole the evidence is negative, and this is also true in regard to nervous and choreic children. On the other hand, cases of non-pulmonary and especially glandular tuberculosis usually do well under the treatment. Broadly speaking, it may be said that this form of treatment, when undertaken by experienced practitioners, has justified itself as an adjuvant to other forms of treatment for children whose standard of health and nutrition is subnormal.

Treatment of Crippling Conditions.

New schemes for orthopaedic treatment were approved during the year in 28 areas, bringing the number of areas in which such schemes have been established up to 160. In many other areas voluntary provision, which in some cases amounts practically to a complete scheme, has been made for the treatment of cripples. Universal experience shows that the crippling conditions found among children of school age in the great majority of cases follow disabilities incurred in the period of early childhood. In Birmingham, for example, a census of cripples taken during the year revealed that 84.5 per cent. of the non-tuberculous crippling conditions arose from causes acting before school age. For this reason it is an essential of any orthopaedic scheme that there should be a system of co-operation between the various committees or authorities concerned, so as to provide for the ascertainment and treatment of cripples at the earliest possible occasion. Delay inevitably results in a prolongation of the period of treatment, with a corresponding increase in its cost; and the ultimate results are far less likely to be satisfactory.

Open-air Schools.

The view is commonly held that in open-air school work health considerations receive so much attention that education has necessarily to take a secondary place. Results from Nottingham indicate that this need not in fact be the case. It may be true that there is—as indeed there ought to be—less formal education than in the ordinary public elementary school, but any loss that might accrue on this account is more than made up for by the child's gain in brightness and general interest and pleasure in its work and play. Open-air school education requires a special technique of its own. This view was well enforced at the recent conference on open-air schools and education held in connexion with the International Child Welfare Congress at Paris. The papors read there emphasized the fact that the open-air movement is destined to have an effect, not merely in its own specialized sphere, but on methods of education generally.

(To be continued.)

EPSOM COLLEGE SANATORIUM FUND.

SECOND LIST OF CONTRIBUTIONS.

IN December, 1926, an appeal was issued by the chairman of council of Epsom College to the medical profession for financial assistance to enable the council to build a new sanatorium and isolation block, and a year later, in our issue of December 3rd, 1927 (p. 1035), we published a detailed description of the proposed building, with plans and a sketch, together with a list of donations to the new sanatorium fund.

Donations to that date amounted to almost £4,208, and subscriptions since received bring the total at the credit of the fund to just over £5,300. Until at least £15,000 is in hand it will not be possible for the council to proceed with the erection of the buildings. The second list of contributions is as follows:

£200.—St. Bartholomew's Hospital Medical Staff.

£100.—Mr. Oswald Addison and Hampstead General Hospital Honorary Medical Staff.

£79 5s. 11d.—Colonel J. Paul Bush (Stock).

£26 5s.—Mr. H. C. Highton.

£25.—Dr. E. L. Adams.

£21.—Mr. H. S. Pendlebury.

£20.—Sir William Hale-White, M.D.

£10 10s.—Dr. William A. Carden, Mr. W. Sampson Handley, and Dr. Prideaux G. Selby.

£8 15s.—Surrey Branch, British Medical Association (further donations).

£5 5s.—Mr. Andrew Cunningham, Dr. Henry J. Dunbar, Dr. C. B. Heald (second donation), Mr. G. J. Jenkins, F.R.C.S., Jessop Hospital (Sheffield) Medical Staff, Dr. Claude W. Morris, Mr. A. C. Palmer, and Dr. Ffrangcon Roberts.

£5.—Cambridge Medical Society, Mrs. S. M. V. Richardson, Dr. Charles Slater, and Dr. F. W. W. Smith.

£3 3s.—Dr. C. F. Peyton Baly.

£2 2s.—Brixton and Streatham Medical Book Society, Dr. E. B. Clayton, Dr. F. W. W. Griffin, Dr. R. H. Knight, Dr. T. C. Mugliston, and Dr. Frank G. Penrose.

£2.—Dr. F. M. Neild.

£1 1s.—Dr. Thomas Baker, Mrs. Theodore Bell, Dr. J. Percival Brown, Dr. E. G. Bunbury, Dr. J. A. Drake (second donation), Dr. Framjee Gotla, Dr. William Douglas Kirkwood, Dr. A. L. Morris, and Dr. H. A. Richards.

Victoria.

[FROM OUR OWN CORRESPONDENT.]

New Chair of Obstetrics at Melbourne.

As the result of the promise of £2,500 per annum by the Premier of Victoria, which will be supplemented by a gift of £20,000 from the Edward Wilson Trust, the council of the University of Melbourne has decided to proceed at once with the establishment of a chair of obstetrics. The council has resolved that the salary attached to this appointment shall be £2,000 per annum. The holder will not be permitted to engage in any private practice for fees while he is the occupant of the chair, and will be available, free of charge, for consultations with the medical advisers of the Women's Hospital and the Queen Victoria Hospital in confinement cases presenting features of serious difficulty or risk. Subject to these conditions the council has remitted to the faculty of medicine the task of drafting the regulations for the establishment of the chair; the faculty has not yet prepared its report.

Resignation of Professor R. J. A. Berry.

After having been associated with the University of Melbourne for nearly twenty-three years, Professor R. J. A. Berry, dean of the faculty of medicine, has tendered his resignation of the chair of anatomy to the council, and in recognition of his valuable services has

been granted six months' leave of absence, commencing in August, 1929. During his term of office as professor Professor Berry devoted himself wholeheartedly to the building up of a school of anatomy and to the teaching of students, in both of which his efforts have been most successful and much appreciated. He has also spent a great amount of time on the study of the structure and functions of the nervous system, and has embodied the results of his work in this direction in a recent publication, *Brain and Mind*. For the past several years, as dean of the faculty of medicine, his efforts have been directed particularly to forwarding the establishment of a university clinical hospital. It would have been a great source of gratification to him, and a fitting termination to his career in the city, if this had been achieved before his departure, but although this seems unlikely his work will probably bear fruit in the future. Professor Berry has many years of useful activity still ahead of him, and those who have had the privilege of being associated with him wish him every success in his future career.

Memorial to the Late Dr. R. J. Bull.

The Victorian Branch of the British Medical Association has erected a memorial tablet in the Bacteriology School of the University of Melbourne, and a statuette in the Medical Society Hall, in recognition of the valuable services rendered by the late Dr. R. J. Bull both to the University of Melbourne and to the medical profession of Victoria. Dr. Bull was director of the bacteriological laboratories of Melbourne University, and his valuable advice and kindly assistance were always willingly given to members of the profession in the state. He had a keen and original mind, and a charming personality, and but for the large amount of routine and teaching work required of him would probably have devoted more time to research. He took a lively interest in medical politics, and at the time of his death was president of the Victorian Branch of the British Medical Association. His untimely death was deeply felt by his many friends, and was a great loss to the University and the medical profession.

Future of the Veterinary School.

The report of the committee which was appointed to inquire into the future of the veterinary school has been adopted by the council of the University, and a deputation has been selected to place its recommendations before the Ministry. The committee recommended that teaching for the veterinary degree course should be continued in Melbourne up to the end of the third year, and that students should then go to Sydney for the fourth year. It was also urged that the University should continue to conduct laboratory, diagnostic, and reporting work, together with investigations of outbreaks of disease in animals, for the stock branch of the Department of Agriculture, with University officers, staff, and equipment as at present. The milk laboratory should also continue on present lines. Other recommendations were that there should be continuance of the facilities afforded to the research officers of the Commonwealth Science Industrial Research Institute up to the limits of the accommodation of the school, and an increase and extension of the endowment fund and other provisions for research work relating to matters of disease in animals by University officers. Finally, the committee proposed that a new Act be obtained providing for the above measures, and including provision for ten retainers of £1,500 per annum to veterinary practitioners located in country districts of Victoria.

Proposed Appointment of a Paid Vice-Chancellor at Melbourne University.

The council of the University of Melbourne has adopted the report of the committee appointed to consider the advisability of appointing a paid vice-chancellor. The committee has recommended that the sum of £2,000 should be provided to include salary, contribution to provident fund, and hospitality allowance, that the vice-chancellor be a full-time officer and should represent the University in dealing with outside bodies, and that he should be the chief administrative officer of the University. His tenure of office, the council decided, would be limited to a period of five years. It was decided to ask the committee to lay the proposal before the Premier and to ask for the necessary funds to carry it into effect.

Lectures by Professor F. R. Fraser.

Professor F. R. Fraser, director of the medical teaching unit at St. Bartholomew's Hospital, London, who visited Melbourne at the invitation of the Post-Graduate Committee, recently delivered a series of lectures at the Medical Society Hall. The lectures were very much appreciated and were attended by several hundred practitioners, many of whom had come from different parts of the state.

Scotland.

Maternal Mortality in Aberdeen.

A REPORT on maternal mortality in Aberdeen for the ten years 1918–27, with special reference to puerperal sepsis, has just been issued by the Scottish Board of Health, the authors being Drs. J. Parlane Kinloch, J. Smith, and J. A. Steven. In a prefatory note Dr. T. F. Dewar of the Scottish Board of Health recalls that such an inquiry was proposed by Professor Matthew Hay in 1917, prior to the suggestion of the Scottish Departmental Committee which reported on puerperal morbidity and mortality in 1924, and notes that the report falls naturally into two parts, one being a critical analysis of data collected in the ten years' investigation, and the other dealing with the essential nature and bacteriology of puerperal septic infection.

The report states that in Aberdeen the local registrars are required to forward daily to the medical officer of health a report of the deaths of women which occur during pregnancy or within four weeks after childbirth. During the ten years there were 252 puerperal deaths, but in only 219 of these was reference made to pregnancy or parturition in the death certificate, so that one in every eight of the maternal deaths was discovered by means of the special system of inquiry thus provided. It was found that of the quinquennial age periods from 15 to 49 the death rate was lowest at the period 25 to 29, amounting then to 5 per 1,000 births, while at the age period 35 to 39 the rate was doubled. A predominant part was played by sepsis and albuminuria in these maternal deaths, and the death rate from haemorrhage was found to increase steadily from 30 years onwards. The death rate among mothers of illegitimate children was found to be fully twice as great as among others. Of the 252 women concerned, 203 were engaged in household duties, 10 were fish-workers, 6 mill-workers, 13 factory workers, and the others were engaged in light employment. Alcoholism cannot be said to have played any important part as a cause of death, for the health visitors found that there was definite evidence of intemperance in the proportion of 1 in 93 of expectant and nursing mothers in general, while this occurred only in the proportion of 1 in 126 among women who died from puerperal conditions. Cleanliness of the house had a certain amount of influence, as only 92.8 per cent. of houses where puerperal deaths occurred were described by the health visitors as good, compared with 95.4 per cent. of good houses among all those visited by them. The curious fact was noted that the puerperal death rate per 1,000 births was 9.2 in houses of three or four rooms, as compared with 4.4 in one-roomed houses. The proportion of deaths from albuminuria and convulsions was definitely highest in the least crowded houses. The state of health during pregnancy had an important bearing, for the records of the health visitors showed that among all cases of births (nearly 3,000 a year) the mothers in 80 per cent. had retained satisfactory health during pregnancy, whereas among the mothers who died the health had been satisfactory during pregnancy in only 40 per cent. of cases. Only 55 per cent. of the women whose deaths were brought under review reached the normal period of gestation. With regard to the influence of syphilis, the death rate per 1,000 births among mothers of

stillborn children was eight times as great as that among mothers of live-born children, and in regard to haemorrhage it was twenty-one times as great. In Aberdeen it is the practice to have the bodies of all stillborn children who are attended by midwives and in the Maternity Hospital examined for spirochaetes, and the result showed that 12.1 per cent. of the stillbirths were due to syphilis. In respect of the danger of different confinements the second was found to be the safest, for the mortality of second confinements was about one-third that of the first confinement, while after the second the fatality again gradually increased. It was found that in the practice of midwives the death rate was 2.8 per 1,000, in the practice of doctors 6.9, and in institutions 14.9. On the other hand, the evidence showed that instrumental delivery was not associated with any increase in sepsis. Emphasis is laid upon the importance of restricting the number of patients and their spacing in maternity wards if contagion is to be reduced. The suggestion is made that infection may be brought by droplet infection of streptococci from the throats of carriers.

Bacteriological examinations were made in a series of 88 cases of puerperal fever. Examination of uterine cultures, blood cultures, and pus from secondary suppurative processes showed that in all cases the organism most frequently found was a *Streptococcus haemolyticus*. In connexion with the prevention of maternal mortality the report concludes that an important reduction would be secured by the expansion and improvement of ante-natal services. It is also suggested that such organization should be made that midwives should conduct normal deliveries, and that doctors should provide the ante-natal services and deal with obstetrical complications. For the destruction of organisms that have invaded the maternal tissues it is suggested that the production of a type (serological) specific antibacterial serum is necessary.

Edinburgh Royal Infirmary.

The annual report of the Royal Infirmary, Edinburgh, was presented to the annual meeting of the court of qualified contributors on January 7th. The report points out that on August 6th the institution will have completed 200 years of service. During the past year 19,680 patients were treated in the wards of the institution, of whom 13,176 were discharged cured, while the deaths numbered 1,084. Of the 18,792 cases admitted 4,326 were medical and 14,466 surgical. The total number treated showed an increase on that of the previous year by 967, and the average daily number of patients in the institution was 913, an increase of 10 on the previous year. The largest number of patients on any one date was 940, and the average time spent in the institution was 16.39 days, against 17.09 in the previous year. Of the cases admitted 8,815 were from Edinburgh and 9,964 from the country. The percentage of deaths in cases treated was 5.5, or deducting deaths occurring within forty-eight hours of admission, 3.8. New out-patients numbered 62,085. The total ordinary income of the Infirmary was £117,191, of which £72,749 was derived from contributions; the increase in income over that for 1927 was £5,695. Extraordinary income amounted to £49,392, of which £16,737 was carried to permanent capital. Ordinary expenditure was £136,831, against £140,539 for the preceding year, and the extraordinary expenditure was £5,849. The cost per occupied bed for the year was £149 17s. 5d., or £5 15s. 4d. less than in the preceding year, and the average cost per patient was £6 19s. 1d. According to the report, the success attending the systematic scheme of collecting small subscriptions from employees showed that this form of support was well maintained. During the year £21,435 was collected from 1,450 groups of subscribers, comprising employees engaged in public works, business establishments, staffs of schools, banks, and Government and other offices. The contributions of miners and oil workers engaged throughout the coal and shale areas served by the institution amounted to £11,141, an increase of £916. Ten tons of silver paper were collected, producing £570 for the Infirmary; it is considered that the spirit of community giving engendered by this means is well worth fostering.

Correspondence.

THE TEMPERATURE IN PULMONARY TUBERCULOSIS.

SIR,—Dr. Colin Milne contributes to your pages in the issue of December 29th, 1928 (p. 1173), a most interesting article on the temperature in pulmonary tuberculosis. There are one or two points, however, which appear to me to be somewhat ambiguous in the course of this article, or open to criticism. He states that to take the rectal temperature requires more time than other methods; yet in the next paragraph he says that with the thermometer in the mouth it is often three minutes before the mercury begins to move at all. Now in taking rectal temperatures three minutes with a minute thermometer is always long enough; whereas, as Dr. Milne indicates, and as was long ago pointed out by Dr. W. Burton-Fanning, even fifteen minutes is not always long enough to record the proper oral temperature in cold weather; and in over 70 per cent. of cases the maximum reading will not be reached after five minutes (see *Tubercle*, vol. vi, p. 179).

Dr. Milne states that an oral temperature of 99° may be considered fever. If he were more used to rectal readings I think he would be more precise and strict. He speaks frequently, too, of a normal temperature. There is no such thing as a normal temperature. The temperature varies according to the conditions under which it is taken, even when it is taken by the same method. Furthermore, as he rightly points out, one individual's normal temperature differs from another, and one sex's from that of the other. He gives interesting facts under the head of this latter point. The temperatures after resting for at least half an hour in a reclining position are the most valuable from the point of view of pulmonary tuberculosis. A further twenty years' experience confirms the conclusion which I reached many years ago and expressed in an article published in the *Lancet* in 1909 (vol. ii), that a rectal rest temperature above 98° in the morning, and above 99.3° in the evening, should be considered fever, at all events in a man. In most men, in fact, a rectal rest temperature of 98° a.m. and 99.4° p.m. will be found to be one degree higher than the average temperature of health. The temperature for oral readings should be one degree lower than this, Fahrenheit, and half a degree lower is the usual reading for urine temperatures. The presence of fever in phthisis demands rest; hence the great importance of these points.

Dr. Colin Milne speaks of a pre-menstrual rise of one week as "long." In my experience seven days' pre-menstrual rise is common, but not much less common is one which is ten days or even fourteen days.

Some references to the subject of the normal temperature will be found under the heading of "Subnormal temperatures" in the *British Medical Journal*, vol. ii, 1925; and, to the subject Dr. Milne deals with, in an article by Dr. C. G. Goodwin, published in *Tubercle*, vol. iv. He does not refer to Dr. Varrier-Jones's recent little book on *The Significance of Temperature Variations in Tuberculous Disease*.—I am, etc.,

Mundesley, Jan. 5th. S. VERE PEARSON.

THE DEFINITION OF PUERPERAL PYREXIA.

SIR,—The standard of puerperal morbidity adopted in a recent paper in the *Journal* (December 15th, 1928, p. 1082) having been questioned by Dr. Bethel Solomons (December 22nd, p. 1155), and the matter being clearly of great importance, I have approached Dr. Alfred Cox for information regarding the "British Medical Association standard," referred to in our paper. He has kindly allowed me to publish the apposite portions of his reply as follows:

"So far back as 1905 the Council set up a Puerperal Morbidity Committee, which consisted of obstetricians from all parts of the United Kingdom. This committee met on two occasions, and issued a report of which one recommendation was that the table of puerperal morbidity should include all fatal cases and also all cases in which the temperature reaches 100° F. on any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery.

"I cannot find that this report was ever submitted for the approval of the Representative Meeting, although it was reported to the Section of Obstetrics and Gynaecology in 1906. I have no doubt that it was this recommendation which was adopted, and has been referred to by some people as the B.M.A. standard of morbidity.

"In 1925, on the request of Sir George Newman, our Special Committee on the Causation of Puerperal Morbidity and Mortality considered a report issued by the Section of Obstetrics and Gynaecology of the Royal Society of Medicine. In this report appeared the following paragraph: 'For the purposes of the notification Acts and the investigations to be initiated after notification the following should be the definition of sustained puerperal pyrexia: sustained pyrexia means and includes any febrile condition occurring in a woman within twenty-one days after childbirth or miscarriage in which a temperature of 100.4° F. or higher is sustained or recurs during a period of twenty-four hours.'

"Our committee's comment on this paragraph was that the period mentioned in the second part of the paragraph should be 'more than twenty-four hours.' The Ministry of Health did not see its way to accept this suggestion of ours, and when the notification of puerperal pyrexia regulations appeared it was found that the expression 'puerperal pyrexia' was defined as meaning 'any febrile condition (other than the condition which is required to be notified as puerperal fever under the Infectious Diseases (Notification) Acts) occurring in a woman within twenty-one days after childbirth or miscarriage in which a temperature of 100.4° F. or more has been sustained during a period of twenty-four hours or has recurred during that period.'

"It is unfortunate that this confusion should have arisen, but we shall have to abide by the decision of the Puerperal Morbidity and Mortality Committee in 1925."

It appears, then, that Dr. Solomons's standard and ours conform neither with each other nor with the standard adopted by the Ministry of Health. One may deplore the lack of clarity in the language employed to give an official definition of "puerperal pyrexia" for the purpose of its notification, but it may be best, nevertheless, if all workers in this field agree to accept henceforth what seems to be intended by the Ministry's definition of "puerperal pyrexia"—that is, *a pyrexia of 100.4° F. or more affecting a woman within twenty-one days after childbirth or miscarriage, and lasting for twenty-four hours on end or occurring more than once in any given twenty-four hours.*

The actual detail of the standard seems to me to be of less importance than that it should be intelligible and unanimously accepted. I am grateful to Dr. Solomons for his criticism, but propose in subsequent studies to adopt the reading of the Ministry of Health standard which appears in (my) italics above, unless good cause can be shown to the contrary.—I am, etc.,

St. Bartholomew's Hospital, London, E.C., Jan. 2nd. RICHARD R. ARMSTRONG.

DENTAL CARIES AND VITAMIN D.

SIR,—Dr. A. E. Barnes will, I think, find sufficient evidence that the increased consumption of sugar is the chief factor in the causation in the widespread prevalence of caries if he will refer to Sir Frank Colyer's textbook on *Dental Surgery and Pathology*. Apart from the fact that "there is abundant clinical evidence to show that the use of sugar is closely connected with the amount of caries," he will be able to note that there is satisfactory statistical and other evidence leading to the same conclusion.

For the present discussion, however, it is hardly necessary even to trouble about the information he might thus derive, since Mrs. Mellanby seems to recognize that "Miller proved that the local or immediate cause of the disease was a chemico-parasitic process" (*British Dental Journal*, July 16th, 1928, p. 769). This chemico-parasitic process, as is well known, comes about from the fermentation of the sugars by bacteria, the end-product being chiefly lactic acid, which initiates caries by its action on the enamel. In view of this it seems strange that three groups of children getting from 50 to 200 per cent. more sugar than the group receiving radiostol should have been represented, as far as I can see, as being in the nature of controls.

With regard to the effect of fat in the diet, nearly thirty years ago, from clinical and other evidence, I claimed that the eating of fat was positively antagonistic to dental caries, and with regard to bacon I recently indicated that it was especially satisfactory in preventing caries, not only because it is rich in fat, but because its fibrous nature stimulates mastication, and, of course, it could not leave, indeed it actually clears away, any carbohydrate residue which might otherwise be left clinging about the teeth. As these views are somewhat widely recognized, surely care ought to have been taken by Mrs. Mellanby and Dr. Lee Pattison not to have included these foods in one group when they were not included in the other.

When highly satisfactory results are got experimentally by restricting the amount of sugar consumed and increasing the fat and detergent bacon, are we not justified in claiming it as evidence of the truth of our theory? That radiostol has nothing to do with what occurs, whether seen clinically or experimentally, is further indicated, since there appears to be little or no vitamin D in bacon fat.—I am, etc.,

London, W., Jan. 5th. J. SIM WALLACE.

CLASSIFICATION OF THE GENUS STREPTOTHRIX.

SIR,—Dr. T. Warwick Preston's article on pulmonary actinomycosis in your issue of December 29th, 1928 (p. 1172), raises an issue which is of particular interest to the bacteriologist. He describes two cases of this disease which proceeded to recovery, the diagnosis in each case being based on the demonstration of branching Gram-positive filaments in the sputum.

Assuming these organisms to have been causative of the condition, which is doubtless justifiable if they were repeatedly found predominating in fresh specimens, I wish to submit that this does not necessarily indicate a true actinomycosis. In this disease material from the lesion contains yellow granules, seen microscopically to be composed of mycelium, and culture in anaerobic media yields a characteristic growth composed of similar bodies. During the past few years I have examined material from about fifteen cases of actinomycosis of the jaw, lung, or abdomen, in which the fungus had these characters, but nearly as many others in which it departed from them. Granules may be absent; the filaments may be broken down into short lengths, easily mistaken for bacilli, or even into bodies resembling cocci, some or all may be Gram-negative; culture in anaerobic blood-broth may yield a flocculent growth instead of the solid rounded colonies of the typical *S. actinomyces*; blood is sometimes a necessary adjunct for growth, sometimes not; the rate of growth may be slow or rapid; the characteristic smell of the culture may be absent. In my experience the atypical streptothrix is more commonly found in pulmonary lesions than elsewhere; this assertion is based rather on the examination of specimens of pus from empyemata and lung abscesses than on findings in sputa. The clinical features of some of these cases differed from those of classical actinomycosis.

Although not wishing to suggest that the term actinomycosis be confined to lesions from which typical granules can be recovered, I submit there is ample evidence of the existence of more than one pathogenic streptothrix capable of causing visceral lesions in man. The prognosis, no doubt, depends on the type of organism, as may the response to various forms of treatment. The classification of the genus streptothrix as found in human disease is therefore an unsolved problem of more than academic interest.—I am, etc.,

London, W., Dec. 31st, 1928. LAWRENCE P. GARROD.

SO-CALLED "WHITE ASPHYXIA" OF THE NEWBORN.

SIR,—We were much interested in Mr. Bourne's letter of December 15th, 1928 (p. 1109), especially as it fully endorses the teaching of the past four years by Professor A. L. McIlroy in this unit.

During this period artificial respiration, hot baths, and all other mechanical forms of stimulation have been entirely

discarded in the treatment of newborn infants suffering from shock. These methods have been replaced by warmth and rest, cardiac and respiratory stimulants such as camphor and lobeline, the use of the mucous catheter, and the administration of 5 per cent. carbon dioxide + 95 per cent. oxygen by means of the apparatus devised by Professor McIlroy (*Lancet*, August 20th, 1927, p. 397).—We are, etc.,

MARGARET SALMOND,
Senior Assistant in the Unit.
BEATRICE TURNER,
Gynaecological Registrar.
Obstetrical and Gynaecological Unit, Royal Free Hospital, Gray's Inn Road, W.C., Jan. 2nd.

SIR,—In the recent correspondence on so-called "white asphyxia" of the newborn I have seen no mention of treatment by carbon dioxide inhalation.

It has been shown by repeated trials that if an infant's lungs are expanded rhythmically with a mixture of 95 per cent. oxygen and 5 per cent. carbon dioxide spontaneous respiration will be established rapidly, provided that the blood is circulating and that the respiratory centre is not hopelessly damaged.

There is little doubt that the frequent success of mouth-to-mouth insufflation (mentioned by Dr. Trumper) is due to the relatively high percentage of carbon dioxide in the operator's expired air. It is difficult to understand Mr. Aleck Bourne's assertion that in mouth-to-mouth insufflation, "nothing can happen but inflation of the stomach through the oesophagus." It is a fact that very considerable pressure can exist in the nose and mouth without any leakage into the stomach. For example, in abdominal operations, in which the stomach is in full view, I have upon several occasions increased the pressure of nitrous oxide and oxygen in the facepiece to the highest practicable point, but I have never been able to satisfy myself that any gases have passed into the stomach. Again, when performing oesophagoscopy under general anaesthesia, although the voluntary muscles are completely relaxed (as in "white asphyxia") the superior constrictor is always found to be closed, and it seems doubtful whether gases at moderate pressure would leak past it. Furthermore, if Mr. Bourne's assertion was correct, one would expect that patients upon whom intrathoracic operations were performed under differential pressure anaesthesia would suffer afterwards from abdominal distension and flatulence, but I have never heard of trouble arising from this cause.

Carbon dioxide has a much greater potency than lobeline or any other respiratory stimulant. For example, if an average man at rest inspires seven litres of air per minute, and then inhales air containing 5 per cent. carbon dioxide, he will inspire nearly thirty litres of air per minute within a few breaths. This forced breathing is of great benefit in cases of atelectasis, while a further action is a marked rise of blood pressure, which also tends to combat the shock condition of "white asphyxia."

In conclusion, I venture to suggest that if all newly born infants who showed the signs of "white asphyxia" were given carbon dioxide-oxygen inhalations without delay, their mortality rate would be considerably diminished.—I am, etc.,

London, N.W.1, Jan. 7th. C. LANGTON HEWER.

SIR,—A mode of treatment which I have used for many years, and often with marked success, in cases of "white asphyxia" is to pass a No. 8 gum-elastic catheter into the trachea of the devitalized child.

Air should be blown into the lungs about eight times per minute. The child's head can be kept low, brandy put into the mouth, the child kept warm, and direct cardiac massage can be performed at the same time. It is quite easy, using the forefinger of the left hand as a guide, and feeling for the epiglottis, to pass the catheter into the larynx with the right hand.

After even one or two "blows," almost invariably, one feels the increased rapidity of the heart's action. When the child does make a spasmodic gasp on its own, air is drawn into the lungs free of all mucus. A soft rubber catheter can be passed, but with much more difficulty than if a gum-elastic one is used. This mode of treatment is harmless and very much more efficacious than mouth-to-mouth insufflation or other form of artificial respiration, which, as Mr. Bourne states, increases the shock.—I am, etc.,

Birmingham, Jan. 1st. STEPHEN SOUTHALL, M.D.

SIR,—So far in this correspondence no one has suggested that there may be two types of "white asphyxia." Infants born after a difficult or prolonged labour (with or without the use of forceps) in a state of "white asphyxia" may be fairly deemed to be suffering from shock; but I would suggest that there are at least two kinds of true asphyxia in whose causation shock plays a minor part.

First, cases are not uncommon where, after the birth of the head, considerable delay occurs in the birth of the shoulders. In these cases, particularly when the cord is twisted round the neck, one sees the face go blue ("blue asphyxia"), and then, if the delay continues, the child passes, after a number of ineffective respiratory efforts, into a state of "white asphyxia." Secondly, premature inspiration resulting in the filling of the air passages with liquor amnii and blood, such as may occur in breech presentations, will produce true asphyxia. The former type is comparable with the asphyxia produced by strangulation or suffocation, and the latter with the asphyxia produced by drowning. Surely neither a drowned nor a strangled man can be said to have died of shock, but of asphyxia.

With regard to the treatment, I agree that the same measures should be adopted with the "shocked" baby as with any other person suffering from surgical shock; but, in my experience, babies who are suffering from the effects of obstructed respiration (which includes obstruction of the placental interchange of gases) respond very quickly to artificial respiration so long as the body is prevented from getting chilled. This is the type of "white asphyxia" that the midwife is most likely to be called on to treat, and a knowledge of the correct method of artificial respiration should enable her to revive most of her asphyxiated babies. From the fact that the large majority of babies so revived show no subsequent symptoms one must assume that there can be no gross lesion in the brain or meninges in most cases.—I am, etc.,

Watford, Herts, Jan. 6th. K. J. AVELING.

SIR,—I have some forty-two years of experience in midwifery. For the past ten years I have abolished artificial respiration. I lay the baby across the bed, head hanging down and tongue out. I simply apply towels wrung out of hot water—one after the other—for a reasonable period.—I am etc.,

Tredegar, Mon., Jan. 6th. I. CRAWFORD.

THE INTERNATIONAL CANCER CONFERENCE.

SIR,—In the course of Dr. Blair Bell's letter under this heading (January 5th, p. 42) he refers to a contribution made by me on the treatment of cancer by lead. Dr. Blair Bell makes certain statements which are so misleading as to call for correction.

With regard to the number of cases treated, twenty very carefully selected cases should be sufficient to estimate the likelihood of the method being of practical value, especially as each case was studied with great thoroughness.

To say that fifteen patients were "too ill to receive more than a very small . . . quantity of lead" is to imply that these cases were unsuitable from the beginning, and were moribund before treatment was commenced. This was not the case, as it was clearly pointed out in my paper that the patients were not moribund, and all were cases which, in the estimation of my senior colleagues, had a fair expectation of life. Every patient had to pass the very stringent clinical and laboratory tests as laid down by Dr. Blair Bell himself before being submitted to the treatment. The fact that some cases, certainly not as many as fifteen, received only a small quantity of lead was due to the grave results actually produced by the treatment.

The observation that the patients were converted into "physical wrecks" was not made only by myself, but by many of my colleagues on the committee which had charge

of the investigation. In some cases they declined to share the responsibility of continuing the treatment.

Dr. Blair Bell seems to be of the opinion that the treatment was not conducted on proper lines. I would remind him, however, that the preparation of lead used was kindly supplied by him direct from Liverpool, and that he was cognizant of the methods employed when he visited St. Bartholomew's Hospital to hear a preliminary report and to see the patients.

The treatment was conducted throughout with the greatest care, full investigations being carried out before each dose was administered. The method conformed in every detail to that laid down by Dr. Blair Bell himself, several members of the staff, including myself, having studied it at Liverpool.

I am still of the opinion that the treatment of cancer by lead in its present form is wholly unjustifiable, if on humanitarian grounds alone.—I am, etc.,

London, W.1, Jan. 7th. J. BASIL HUME.

POST-PARTUM ANAEMIA.

SIR,—With reference to the case of post-partum anaemia reported in your issue of December 22nd, 1928 (p. 1131), I am surprised to see no reference made by the authors to the work of Dr. Margaret Balfour of the Haffkine Institute, Bombay, on the anaemia of pregnancy and of the post-partum period.

Cases similar to that recorded are relatively common in Indian practice. One is inclined to suspect that a grave degree of anaemia was present in the last weeks of pregnancy, and that, as is usual in this disease, the profundity increased rapidly after delivery. My own experience has been that the disease, when definitely developed and under ordinary methods of treatment, is extremely fatal, either towards the end of the pregnancy or within a few weeks of delivery, and I agree that the case quoted would have inevitably terminated fatally without blood transfusion.

Two or three recent and very severe cases at St. George's Hospital, Bombay, I treated by blood transfusion, combined with liver, and these patients recovered rapidly. I give about 300–400 c.cm. of blood on three or four occasions within a week by the citration method, and I formed the opinion that the recoveries were due to the blood transfusion and not to the liver. This is fortunate in that the vegetarian Hindu will not take liver, although I understand there is now a liver extract administrable by injection which could be used.

There is no question that many cases in India go unrecognized owing to the prevalence of other profound anaemias. "Malaria" is a frequent diagnosis, owing to the invariable occurrence of fever in pregnancy anaemia. Treatment by quinine not only does not touch the fever, but actually appears to aggravate the anaemia. Compare in the present case the "influenza" from which the patient suffered before her confinement. How convenient "malaria" in the tropics and "influenza" at home to the busy practitioner for the diagnosis of unexplained fevers!—I am, etc.,

W. C. SPACKMAN, M.B., B.S.Lond.,
London, S.W., Dec. 22nd, 1928. Major I.M.S.

CARDIOSPASM OR ACHALASIA OF THE CARDIA.

SIR,—The direct questions put to me by Mr. C. C. Beatty in your issue of January 5th (p. 45) compel me to break a New Year's resolution at this early date.

1. Mr. Beatty asks me to explain the fact that the obstruction is not always at the cardia, but the answer is given in the heading of his letter, as "Cardiospasm or achalasia of the cardia" is obviously a condition of the cardia and of nothing else. I have only seen one case of the kind he mentions: in this obstruction was present in three different places, and I regarded the condition as probably one of multiple spasmodic strictures.

2. The fact that I believe in achalasia of the cardia does not make me deny the possibility of spasm of the cardia. I have seen three or four cases in which the cardiac sphincter resisted the passage of the mercury tube and gripped it after its passage, just as the anal sphincter in a state of spasm resists and grips the finger. The condition was primarily due to achalasia, but the oesophagitis caused by prolonged retention of fermenting food had led to spasm, the degeneration of Auerbach's plexus being presumably incomplete. Lavage of the dilated oesophagus resulted in the disappearance of both the oesophagitis and spasm in a few days, but the achalasia persisted until it was finally cured by the mercury tube.

3. The exact height of the residue of food in the oesophagus varies in different cases. In those which I have measured accurately it has been approximately eight inches, but no doubt the resistance of the closed cardia varies in different individuals.

4. The resistance of the closed sphincter is probably less in small children than in adults, owing to its slighter development, but the only measurements I have made have been in adults.

5. The sphincter does not *relax* when the column of fluid above it exceeds eight inches, as it is incapable of relaxation in achalasia; relaxation indicating an active process, the exact opposite of contraction. The sphincter is forced open, and is only kept open so long as the pressure is sufficient; its action is comparable with that of a safety valve to a boiler, which allows steam to escape when a certain pressure is reached, but closes again as soon as the pressure falls to the level at which it opens.

As Mr. G. W. Rake is at present in America I am answering the question put to him by Mr. Beatty. I find a mistake was made in copying the figures from his paper. The thickness of the wall of the oesophagus in his first specimen was 0.2 cm., 0.8 cm., and 0.45 cm. respectively at the upper end, in the middle of the hypertrophied area and just above the cardia, the measurements given in his letter being those of the diameters of the lumen.—I am, etc.,

New Lodge Clinic, Windsor Forest, Jan. 5th. ARTHUR F. HURST.

TREATMENT OF VARICOSE ULCERATION.

SIR,—In the interesting report (December 22nd, 1928, p. 1144) on the treatment of varicose ulcers, one table (No. XI) is of special interest for the following reasons. This table gives the percentage of healing in cases treated by different methods, and appears at first sight to give a guide to the relative value of various methods of treatment. It is probable that many readers will interpret it in this way, and will feel supported in doing so by the statement in your leading article on page 1147, that "the report conclusively indicates the best treatment prevailing at the present time."

However, a close inspection of the report shows that it is not justifiable to draw such conclusions from the data actually published, and I venture to suggest that if Dr. Luff is able to publish certain further data the value of the table and of the whole report would be much enhanced. The further data desired are those showing how far the cases in each group are truly comparable (of which data the duration of ulceration prior to the treatment is of most importance), and the data concerning the use of two or more methods of treatment for one case.

The duration and extent of the complaint prior to treatment are of the utmost importance in appraising the value of various methods, owing to the contrast between the ease with which the first ulcers usually heal and the difficulty which is met with in healing old ulcers surrounded by extensive areas of indurated tissue. Owing to this contrast the percentages in the table may easily be influenced by a preponderance of cases of one or other type in certain of the groups. Indeed, in the treatment by removal of veins it seems probable that a selection of especially suitable cases was made, as such selection would be most fully justified.

The desirability of indicating the conjoint use of several remedial measures is evident from the statement early in the report that 56.2 per cent. of all cases were treated with rest in bed, and 44 per cent. with bandaging. Since rest in bed alone will cure a large percentage of ulcers it is evident that the position of a method of treatment in Table XI may depend more on the extent to which the

physicians insisted on rest (or on careful bandaging) than on the value of the special treatment employed.

If such data cannot be given for all the cases they would still be of much interest for the group treated by ultra-violet light. This group shows a surprisingly high percentage of cures, especially in view of the cautions given as to the need of skilled technique and care in dosage. These warnings suggest some wider experience of cases in which ultra-violet radiation has been unsuccessful than the six cases mentioned in the report, and in the absence of details it seems possible that the high percentage of cures in this group may have been due to exceptional care or skill on the part of the physicians concerned, rather than to the specific action of the radiation.

These questions are put, not with a desire to belittle a successful piece of work, but in the hope that Dr. Luff may be able to add further weight to the evidence already given. It is also hoped that, should further collective investigations into treatment be undertaken, the need for observation and tabulation of all the pertinent variables may be yet more fully recognized.—I am, etc.,

National Institute of Medical Research, Hampstead, Jan. 7th. R. B. BOURDILLON.

CYSTICERCOSIS OF THE BRAIN.

SIR,—The case of cysticercosis of the brain described in the *Journal* of December 1st, 1928 (p. 980), recalls to my mind a very similar picture in an Indian shepherd boy who came to the *post-mortem* table in Madras Medical College some five or six years ago. The patient was admitted to the wards with a history of commencing blindness associated with fits. The true cause of his condition was obscure during life, and only revealed at the necropsy, conducted by my assistant, Dr. A. Vasudevan. The pathological description by Dr. Broughton-Alcock would equally apply to our case. The cysts were almost entirely relegated to the grey matter generally, and the optic thalamus particularly was stuffed with them. Over seventy cysts were picked from one hemisphere. These showed hooks and suckers, and were diagnosed as the bladder-worm stage of *Taenia solium*. It was somewhat curious to find a typical *Taenia saginata* in his intestine. One of the hemispheres is now to be seen in the museum of the pathology department of Madras Medical College.—I am, etc.,

W. LEONARD FORSYTH, M.B., D.P.H.,
Major I.M.S. (Ret.),
December 15th, 1928. Professor of Bacteriology, Egypt.

TONSIL AND ADENOID OPERATIONS.

SIR,—May I express my agreement with most of Mr. Herbert Tilley's letter of December 29th, 1928 (p. 1194); but, like Mr. T. A. Clarke, who writes in this week's issue, I am unable to acquiesce in the routine use of ligatures in tonsillectomy. It is most important to avoid loss of blood, and to send the patient back to bed with all haemorrhage arrested. In the majority of cases this can be achieved by the use of the "La Force haemostatic guillotine." My colleague Mr. F. C. Wrigley and myself have now used this instrument in over 500 cases, and are both enthusiastic about its value. In successful cases there is no bleeding at all, or at most a mere tingeing of the mucus, and it is unnecessary to use a single swab.

Like other guillotines, it occasionally fails, and resort must be had to dissection. I have never experienced this in children, and in only about 5 per cent. of cases in adults. We have only had one case of reactionary haemorrhage after the patient had been removed to bed. In a few cases—I do not know the exact proportion—the instrument does not arrest the haemorrhage, and then the usual methods, including possibly that of ligature, have to be adopted.

The instrument is condemned as unsurgical by Mr. Irwin Moore in his recent book *Tonsils and Adenoids*, but I have found it to produce less trauma, less post-operative discomfort, freer faucial pillars, and less cicatrization than any other. It is rather more difficult to use than other guillotines, and some practice is necessary for its efficient employment. I feel very strongly that the "La Force" guillotine should be more widely known and used in this country.—I am, etc.,

Manchester, Jan. 5th. D. LINDLEY SEWELL.

SIR,—Like your correspondent Mr. Clarke (January 5th, p. 45), I would also like to express my strong opposition to Mr. Tilley's advocacy of the routine application of ligatures in tonsillectomy.

I can truthfully affirm that I have *never* found it necessary to apply a ligature, though I have been constantly doing the operation since it was first introduced about twenty years ago. Of later years I remove *all* tonsils by the propulsive avulsive method with an abnormally blunt guillotine, and I must underline Mr. Clarke's contention that the "occasional exercise of a little patience," combined on rare occasions with the application of a pressure pad, will obviate any alarming loss of blood.

In a surgical operation the safety and efficacy of which is largely dependent upon the celerity with which it can be carried out in the average case, the elimination of every unnecessary complicating factor is highly desirable.—I am, etc.,

Cork, Jan. 7th. J. B. HORGAN.

LIPIODOL.

SIR,—In the review of our brochure on *Lipiodol in the Diagnosis of Thoracic Disease* (January 5th, p. 21) we were astonished to read the following words: "They describe the various methods of using lipiodol in chest diagnosis, favouring the crico-thyroid membrane route as 'on the whole most satisfactory,' but they omit to mention an important point in the technique, which is the incision of the skin by a scalpel before the trocar and cannula is introduced." We consider the use of a scalpel unnecessary and most undesirable, and its employment clear evidence of a faulty instrument or an imperfect technique.—We are, etc.,

F. G. CHANDLER.
W. BURTON WOOD.

London, Jan. 7th.

*** Our reviewer states: "Pressure upon the trachea, especially in children, is the most frightening part of the operation for the introduction of lipiodol. A trocar sharp enough to penetrate the skin with very slight pressure is a dangerous instrument to insert into the trachea. Only by making a small incision in the skin with a scalpel can a trocar of moderate bluntness be introduced without producing discomfort."

ASTHMA RESEARCH COUNCIL.

SIR,—In view of statements which have recently appeared in the press to the effect that a "certain cure" for asthma has been found, we, the undersigned, desire to place on record that there is no such "cure" known to medical science, and that there is not any one form of treatment which is effective in all cases of asthma.

Investigations are being made under the auspices of the Asthma Research Council, and with the approval and support of the Medical Research Council and the Ministry of Health, into the mysteries of this distressing complaint which, it is hoped, will lead to a better knowledge of its origin and to the discovery of improved methods of prevention and treatment.

We hope that all interested in the subject, and especially well-to-do sufferers, will give their moral and financial support to the campaign, which will be inaugurated by the Lord Mayor of London at the Mansion House on January 15th, for a national fund to provide research centres at several of the leading London and provincial hospitals, where asthma and its allied diseases will be scientifically and exhaustively investigated. Donations and offers of assistance should be sent to Sir Albert Stern, Honorary Treasurer, Asthma Research Council, London Clinic, Ranelagh Road, London, S.W.1.—We are, etc.,

HUMPHRY ROLLESTON.
DAWSON OF PENN.
ARTHUR F. HURST.
F. E. FREMANTLE.

London, Jan. 8th.

Obituary.

WILLIAM WARWICK WAGSTAFFE, O.B.E.,

M.B., B.Ch.Oxon., F.R.C.S.Eng.,

Honorary Surgeon, Radcliffe Infirmary.

THE death of Mr. William Warwick Wagstaffe in the Acland Nursing Home, Oxford, after a short illness entailing two operations, has been a painful blow to his professional colleagues and to his wide circle of friends.

Born in 1886, the son of Mr. W. W. Wagstaffe, one-time surgeon to St. Thomas's Hospital, London, "Billy" Wagstaffe was not long in showing his mettle. Starting his school life at The Beacon, Sevenoaks, he gained a scholarship at Charterhouse, and passed on to Oxford as a biological scholar of New College. While at Oxford he came under the influence of Sir William Osler, with whom he was associated in the study of the writings of Vesalius and other early anatomists. It is known that Osler held an extremely high opinion of his ability and character. Having finished his Oxford career with a first class in the Honours School of Natural Science, he entered St. Thomas's Hospital, where he soon showed that his abilities were in no way those of a mere examinee. He graduated M.B., B.Ch. in 1911, and obtained the diplomas M.R.C.S. and L.R.C.P.

After taking his medical degree he became a house-surgeon to Sir Henry Makins and Sir Cuthbert Wallace, and afterwards served as casualty officer. In 1913 he made a rapid rush to the Balkan war as a Red Cross surgeon, but had the misfortune to arrive too late for active service. He obtained the diploma F.R.C.S. in 1914. The outbreak of war in the same year found him characteristically prepared, and, as an officer of the R.A.M.C. Special Reserve, he was one of the first and most eager to respond to the call. His service in France, in which he rose to the rank of major, was marked throughout the war by a cheerful devotion to duty and an unostentatious efficiency, for which he was deservedly enrolled in the Order of the British Empire.

At the termination of the war Wagstaffe was appointed assistant to the surgical unit at St. Thomas's Hospital, where he gained first-rate experience of modern civil surgery, and thence he passed on to Oxford. He was a keen member of the British Medical Association, and served on the executive committee of the Oxford Division in 1927–28. He was married in 1916 to Margaret Cuthbertson, who was then serving as a nurse in a war hospital in the British Expeditionary Force. He is survived by his widow and two children, aged 9 and 7.

In the course of a twenty years' friendship the writer has never known "Billy" Wagstaffe anything but master of himself, content with his lot, and full of love for his fellow men. A capable athlete at half a dozen games, a lover of good books and good company, courageous and single-minded in all his dealings—while laying no claim to sainthood or genius, he was one of those completely integrated, utterly trustworthy, and lovable personalities who enrich the lives of all those with whom they come into contact. *Requiescat in pace.* A. D. G.

Dr. W. COLLIER, consulting physician to the Radcliffe Infirmary, writes:

Mr. Wagstaffe was appointed second assistant surgeon to the Radcliffe Infirmary and County Hospital in the earlier part of 1924. He had to wait but a short time for promotion, as three years later, on the retirement of Mr. Dodds Parker, he was elected honorary surgeon, with a full complement of beds. At the very outset of his Oxford career he showed his interest in all branches of surgery, attending the meetings both of the Oxford Medical Society and of the Oxford Division of the British Medical Association with the greatest regularity. At these meetings he not only took his full share in the discussions of cases and papers connected with his subject, but made several valuable surgical contributions, which added materially to the success of the meetings. This work was bringing its reward, as Mr. Wagstaffe was rapidly gaining an increasing share of the surgical work both in the city and county. The esteem in which he was held by his medical friends was amply proved by the very large number of medical men, both from the city and county, who attended his funeral. His published writings include an article (with Mr. W. W. Trotter) on "Gunshot wounds of the head," in the *Official Medical History of the War*, and a number of articles on abdominal disease from the surgical point of view, in various journals. He was secretary, treasurer, and manager of a small travelling surgical club, and its annual visits abroad helped to keep him in touch with his surgical contemporaries, and with the progress of surgery in foreign countries.

Professor ARTHUR THOMSON writes:

Directly Wagstaffe settled in Oxford (1922) he was appointed a part-time demonstrator in the department of human anatomy, and he held that post for the next six years. One likes to think that he got his love of the subject from his father, whom some senior readers will remember as not the least distinguished of the older school of "surgeon-anatomists." Be that as it may, his capacity for clear statement of facts and his careful methods of observation made him an excellent teacher for medical students, who readily appreciated his constant insistence on the practical application of what they were learning in the dissecting room. At the same time, the intimate acquaintance with the details of anatomy he thereby obtained was of the greatest advantage to him in the surgical practice which he subsequently proved himself so well fitted to undertake, and which he pursued with marked success in a career, alas! too brief. His kindness of heart and ever helpful assistance to those in difficulty made him a general favourite, and his premature death will be a source of regret to all those with whom his relations were intimate.

JAMES CHALMERS, M.D.,

Consulting Physician, Children's Hospital, and Physician, Royal Infirmary, Sunderland.

WE regret to announce that Dr. James Chalmers, who had been in practice in Sunderland for about thirty-five years, and who was well known in professional circles in the North-East of England, died suddenly at his residence there on December 31st, 1928, in his sixty-first year.

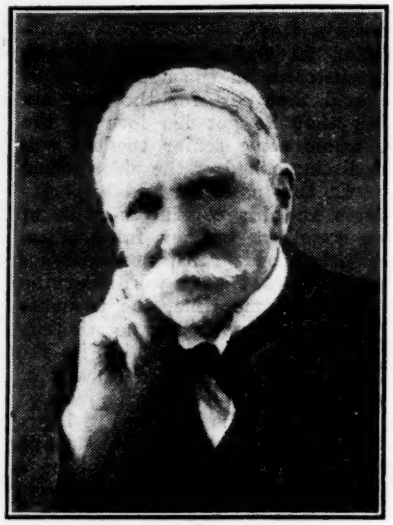
James Chalmers was born at Cummertrees, in Dumfriesshire, in 1868, and received his early education at the Wallace Hall Academy, Closeburn, pursuing his medical studies at the University of Glasgow. He graduated M.B., C.M. in 1890, proceeding M.D. in 1909. After being house-surgeon and resident physician at the Glasgow Royal Infirmary, he commenced practice in Sunderland in 1893, and in the years that followed built up an extensive connexion, giving his services freely to various institutions. He became honorary physician to the Sunderland Royal Infirmary, and, after holding a similar post at the Children's Hospital, was latterly consulting physician; in both institutions he also took an active part in the business of management. Dr. Chalmers was also intimately associated for many years with the Sunderland Orphan Asylum for Boys, as honorary surgeon and as a member of the governing body, and was honorary physician to the Parker Memorial Home. The work of the St. John Ambulance Association gained his ready support, and during the war he was commandant of a V.A.D. hospital.

In the British Medical Association he became a member of the Executive Committee of the Sunderland Division in 1912, and held various other offices later, being vice-chairman of the Division in 1920–21, and its representative in the Representative Body from 1926 until last year. In the year 1919–20 he was vice-president of the North of England Branch. He took a keen interest in the medical charities and acted as charities secretary for the Sunderland Division. He was a past-president of the North of England Glasgow University Club.

Dr. Chalmers was a deacon of the Union Congregational Church, Sunderland, where the funeral service was held on January 3rd. Among those present were many members of the medical profession and representatives of the institutions with which Dr. Chalmers was connected. He is survived by his widow, a son, and a daughter.

JAMES STEWART, F.R.C.P.Ed.

WE regret to record the death on December 2nd, 1928, of a veteran member of our profession, Dr. James Stewart, which took place at his residence in London in his eighty-ninth year. He was the son of Dr. Robert Stewart, superintendent of the Mental Hospital, Belfast. He received his education at Queen's College, Belfast, and after taking the degree of B.A. studied medicine in Dublin and Edinburgh. He took the diplomas of L.R.C.S.I. in 1864, M.R.C.P.Ed. in 1880, and F.R.C.P.Ed. in 1889. He became a surgeon in the Royal Navy in 1865, and he was serving in Jamaica at the time of the yellow fever epidemic in 1867. After leaving the service in 1870 he acted for two years as resident medical officer to the Dorset County Mental Hospital, Forston, and was senior assistant medical officer of the Kent County Mental Hospital from 1873 to 1875. In the following year he established a home for the treatment of inebriates at Clifton, Bristol, which he conducted until 1906. He was one of the original members of the Irish Medical Schools' and Graduates' Association, and was for many years its energetic provincial secretary, devoting much time and enthusiasm to the work. He was for over fifty-five years a member of the British Medical Association, was a member of the Executive Committee of the Richmond Division in 1913–15, the representative of the Lambeth Division in the Representative Body in 1921–24, and a member of the Westminster and Holborn Division, in addition to being an associate member of the Gloucestershire Branch.



DR. JAMES STEWART.

Dr. Stewart was a man of scholarly attainments, with an intimate knowledge of Greek and Latin authors, especially Homer and Horace, with apt quotations from whom it was his wont to delight his friends. A lifelong abstainer and non-smoker, he regarded his robust health as in large part due to these habits. Intensely interested in his profession and everything pertaining to it, it was his pleasure to read the *Journal* weekly, in his own phrase, "from cover to cover." Not the least of his great good qualities was his wonderful sense of humour; and his constant jokes, which were always in good taste, made him a most entertaining companion. He will be sadly missed.

Dr. Stewart was twice married, and had one son and two daughters by his first wife; he is survived by his widow. Among those present at the service at Golder's Green Crematorium on December 5th were several of his old friends and colleagues.

MR. ADAM WILSON, who died in a nursing home at Newcastle-on-Tyne on December 8th, 1928, at the age of 80, had spent the greater part of his life in that city, where he occupied a leading place among civic workers. Born in Scotland, he received his medical education at the Anderson College of Medicine, Glasgow, and obtained the diplomas L.R.C.P.Ed. and L.R.F.P.S.Glas. in 1869, being admitted F.R.C.S.Ed. in 1877. He commenced practice in Newcastle soon after qualifying, and attained a considerable degree of success. In the course of his career he was associated with many of the hospitals and allied institutions in the district, having been at one time assistant surgeon at the Walker Hospital and later surgeon to the Newcastle Dispensary and to the industrial schools. He was a keen member of the old Volunteer Force, and at the time of his retirement from it, after receiving the Volunteer Decoration, was surgeon colonel with the 2nd Volunteer Battalion Northumberland Fusiliers. In spite of the heavy claims of his professional duties Mr. Wilson found time to give his services to local public affairs. He entered the Newcastle Council in 1885, and from that time onwards took a large share in the government of the city, devoting himself particularly to the work of the sanitary committee. He was also keenly interested in educational matters and was a governor of the Royal Grammar School. In 1904 he was appointed an alderman of the city, but although he was on several occasions pressed to undertake the office of mayor the extent of his private practice prevented him from agreeing to do so. Some eighteen months ago he was made a deputy lieutenant for the county of Northumberland. Mr. Wilson was a member of the British Medical Association and a trustee of the Hospital of St. Mary the Virgin. While he identified himself intimately with Newcastle he maintained a close association with his native country and preserved contact throughout his life with many medical friends in Glasgow and Edinburgh. In his recreations also he adhered to the Scottish tradition, having been a leading member of the Newcastle Burns Club and a keen and skilful golfer.

Medico-Legal.

BOGUS DOCTOR CONVICTED.

A MAN of 50, named Robert Harry Andrews, was found guilty at Buxton Police Court on December 29th, 1928, of having on two occasions unlawfully, wilfully, and falsely pretended to be a doctor of medicine; the magistrates imposed a fine of £5 in each case, or two months' imprisonment.

The offences were committed in December, 1927, and a summons was subsequently issued, but the accused did not appear in answer to it. He was arrested at Burton-on-Trent on December 20th last. A woman witness stated that Andrews called at her house at Fairfield, Buxton, and said that he was Dr. Holloway of Tideswell, that he was travelling for the firm of Holloway, and that he gave his services free to the public every fifth year. She said she was suffering from an illness, and Andrews examined her with a stethoscope; he offered her a bottle of medicine, saying it would cure her in a month, and she paid 8s. 6d. for it. Another woman witness told of a similar call, when the prisoner asked if anyone in her house was ill, and examined her daughter, who had been ill for seven years. In this case, also, Andrews gave a bottle of medicine, and said it would cure the patient in a month. The woman paid him 2s. 6d. on account. Later, Andrews gave her husband pills to cure a cough, and subsequently called for the remainder of the money. This was refused, and information was sent to the police. A police constable stated that, in consequence of a complaint, he saw the accused, and asked him if he was a doctor. Andrews replied that he was not, but that he was a nerve specialist, admitting that he had no special qualification to act as such. In his attaché case were found a stethoscope and other instruments; the accused told the constable that he used the stethoscope to test the patients' chests to see if they could stand his treatment. It was stated that when the arrest was made Andrews was staying in Burton-on-Trent under the name of Dr. Robertson. Andrews, in his evidence, stated that he had never called himself a doctor, but had said he came "from Dr. Andrews; he never prescribed for anyone individually, or pretended in any way to be a doctor." His treatment, he said, was patented medicine, and it was not stated on the bottle that it was prepared by a doctor. He added that he had always asked his prospective patients if they were in a doctor's charge, and if so, he had told them they had better keep to the doctor.

It was stated that the accused had been previously convicted on a number of charges during the past twenty-five years, including one of embezzlement and several of obtaining money by false pretences.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following have been recognized as teachers of the University in the subjects indicated: Guy's Hospital Medical School, Dr. A. H. Douthwaite (medicine); St. George's Hospital Medical School, Dr. C. B. Levick (medicine); Middlesex Hospital Medical School, Mr. V. R. Hudson (surgery). It has been decided to institute a University Chair of Anatomy, tenable at St. Thomas's Hospital Medical School.

UNIVERSITY COLLEGE.

The following lectures will be given at University College, Gower Street, W.C.1, at 5 p.m.: Mr. G. P. Crowden, three lectures on Fatigue, on Mondays, January 14th, 21st, and 28th. Dr. A. S.

Parkes, six lectures on the Physiology of Reproduction, on Wednesdays, January 16th, 23rd, and 30th, and February 6th, 13th, and 20th. Mr. C. F. Pantin, ten lectures on Comparative Physiology, on Fridays, January 18th and 25th, February 1st, 8th, 15th, and 22nd, March 1st, 8th, 15th, and 22nd. Dr. R. J. Ludford, six lectures on Cytology in Relation to Physiological Processes, on Thursdays, January 24th and 31st, February 7th, 14th, 21st, and 28th.

The following candidates have been approved at the examination indicated:

M.D.—(*Branch I, Medicine*): Susanna M. Bernard, Kathleen M. Bowman-Manifold, J. W. Brown, W. F. Gaisford, L. Hartston, H. Joules (University Medal), M. Mitman, H. S. Morley, Marie Petersen, Muriel F. Prout, W. E. Rees, B. B. Sharp, A. S. Wesson, W. S. Whimster. (*Branch IV, Midwifery and Diseases of Women*): R. K. Ford, M. E. MacD. Jago, Lucy Parker, H. W. Parrott. (*Branch VI, Tropical Medicine*): A. N. Kingsbury, J. N. Leitch.

UNIVERSITY OF BIRMINGHAM.

DR. R. G. MACGREGOR has been appointed lecturer in physiology.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examinations indicated:

D.P.H.—A. Halpenny, R. F. G. Dickson.
DIPLOMA IN PSYCHOLOGICAL MEDICINE.—J. F. W. Leech, M. A. Walsh.

Medical News.

THE Royal Society of Medicine has arranged a joint discussion on post-operative thrombosis by the Sections of Pathology, Surgery, and Obstetrics on Friday next, January 18th, at 8 p.m. The openers will be Dr. Howel Evans, Mr. D. H. Patey, and Mr. Victor Bonney.

AMONG the courses of public lectures at University College, London, during the current term are several of some interest to members of the medical profession. On January 17th and five following Thursdays, at 5 p.m., lectures on "The chemistry of some natural drugs" will be given by Mr. H. R. Ing. A course of similar duration dealing with "The current work of the biometric and eugenics laboratories," will be given on Tuesdays, at 5.30 p.m., from January 29th to March 5th, the lecturers including Professor Karl Pearson, F.R.S., Dr. Julia Bell, and Dr. Percy Stocks. "Hygiene of the mercantile marine" is the subject of three lectures to be delivered by Dr. J. Howard Jones, medical officer of health, Newport, on Fridays, February 22nd, March 1st and 8th, at 5.30 p.m. Dr. J. H. Burn, director of the laboratory of the Pharmaceutical Society, will be the lecturer at three illustrated lectures on "The properties of, and methods of estimating, some therapeutic agents," at 5 p.m., on Wednesday, Thursday, and Friday, February 27th, 28th, and March 1st. On Thursday, February 14th, at 6 p.m., Professor P. Abercrombie will speak on "Town planning in town and country"; and on the following evening, at 5.30 p.m., Mr. Geoffrey Peto, M.P., will discuss "The Local Government reform scheme and de-rating." Dr. A. Maitland Ramsay will give three lectures in the Medical School on "The eye in general medicine," with lantern illustrations, on March 4th, 6th, and 8th, at 5.30 p.m. These lectures will be given at the College, Gower Street, W.C.1, admission being open to all without fee or ticket.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that on Wednesday, January 16th, at 4.30 p.m., the new series of demonstrations arranged at the Wellcome Museum of Medical Science, 33, Gordon Street, W.C., will begin, when Dr. Helen Mackay will speak on some recent work in connexion with rickets. There is no fee for this demonstration. The new series of lectures entitled "Pitfalls in medicine and surgery" will start on Monday, January 21st, at 5 o'clock, at the London Medical Society, 11, Chandos Street, Cavendish Square; Dr. Robert Hutchison is the first lecturer, his subject being "Pitfalls in the diagnosis of dyspepsia." A lecture, for which there is no fee, will be given on Thursday, February 14th, at 4.30 p.m., at the Medical Society, by Dr. Gerald Slot, on calcium therapy. An intensive course in cardiology at the National Hospital for Diseases of the Heart, and an all-day course at the Queen's Hospital for Children, begin on January 14th, continuing for a fortnight. From January 28th to February 9th an intensive course in medicine, surgery, and the specialties will be given by the staff of the Prince of Wales's General Hospital, Tottenham. On Tuesdays and Saturdays, at 11 a.m., from January 29th to February 23rd, a series of lecture-demonstrations in psychological medicine will be given at the Bethlem Royal Hospital by Dr. Porter Phillips and his staff. Copies of the syllabuses and information regarding the general course of the Fellowship of Medicine will be forwarded on application, as also copies of the *Post-Graduate Medical Journal*. Weekly demonstrations in medicine and surgery, to which admission is free, will be resumed shortly. A full list covering the next three months, may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE first of a series of special post-graduate courses at the Royal Northern Hospital begins on Monday, January 28th, when the opening lecture in a course on gastro-enterology will be given at 2.30 p.m. In all, the course will comprise fourteen lectures covering the subject in its medical, surgical, radiological, and pathological aspects. Applications for admission to the course, which is intended primarily for those engaged in general practice, should be accompanied by the fee of £2 2s., and should reach the secretary of the hospital, Holloway, N.7, not later than January 21st. Further particulars and information relating to other special courses to be held during the year may be obtained from the dean at the above address.

A COURSE of advanced lectures on infant care in preparation for the crèche nurses' advanced certificate granted by the National Association for the Prevention of Infant Mortality and the National Society of Day Nurseries will be given, under the auspices of these bodies, by Dr. Victoria Bennett at Carnegie House, 117, Piccadilly, W.1, on Thursdays from January 17th to March 21st at 7.30 p.m., followed by an examination on Saturday, March 23rd, at 2.30 p.m. Full particulars may be obtained from Miss Maddocks, secretary, National Society of Day Nurseries, at the above address.

THE People's League of Health announces that the ninth annual series of Sims Woodhead Constructive Educational Health Lectures will be given at the Medical Society of London, 11, Chandos Street, London, W., on Fridays, from January 18th to March 22nd, and on April 12th and 19th, in each case at 6 p.m. The first lecture, on "The need for a national stocktaking," will be given by Mr. C. J. Bond; most of the others are also by medical men, the series forming a connected study on the physiology and care of the body and mind. There will be an optional examination at the close of the course for those who have attended the series; certificates will be issued by the medical council of the League, and it is proposed to award a travelling scholarship enabling a visit to be made to a foreign country with facilities for seeing its health centres. The fee for the series is 12s.; tickets and further particulars may be obtained from the general secretary of the league, 12, Stratford Place, W.1.

THE annual meeting of the Royal Microscopical Society will be held in the Lecture Hall at 20, Hanover Square, W., on Wednesday, January 16th, at 8 p.m., when Mr. Joseph E. Barnard, F.R.S., will deliver the presidential address on "Some aspects of ultra-violet microscopy." The Biological Section will meet in the Library on Wednesday, February 6th.

A JOINT meeting of the Medico-Legal Society and the Maternity and Child Welfare Group of the Society of Medical Officers of Health will be held on Thursday, January 24th, at 8.30 p.m., at 11, Chandos Street, W.1. Sir William Willcox, president of the Medico Legal Society, will take the chair, the subject for discussion being: "Criminal abortion and measures necessary to restrict the sale of abortifacient drugs." The speakers will include Sir Bernard Spilsbury, Professor Beckwith Whitehouse, Mr. H. D. Roome, Dr. F. J. McCann, and Dr. R. A. Lyster. Members, on producing their private cards, may introduce guests to the meeting. An invitation to be present is extended to all members of the Society of Medical Officers of Health, particularly those of the Metropolitan and Home Counties Group. Representatives of the press, other than medical and legal journals, will not be admitted to the meeting.

MESSRS. J. and A. CHURCHILL announce for early publication: *Surgery in the Tropics*, by Sir Frank Connor; *The Radium Treatment of Cancer*, by Mr. Stanford Cade; and *Surgical Radiology*, by Mr. A. P. Bertwistle. Also two new volumes in the recent advances series: *Psychiatry*, by Dr. Henry Devine; and *Cardiology*, by Drs. C. F. T. East and C. W. B. Bain.

WE have received a bound copy of the sale catalogue of *Early Books on Medicine, Natural Sciences and Alchemy*, published by L'Art Ancien S.A. of Zürich. The work, the first three parts of which were issued separately at Lugano, and were noticed in previous issues of the *Journal*, contains scientific and bibliographical descriptions of 1,988 books published between 1468 and 1800, illustrated by contemporary woodcuts. A subject index is appended.

THE January number of *Leprosy Notes* contains the first section of a series of notes on leprosy in European countries, attention being devoted in the first place to those bordering the Baltic Sea. Dr. Henry Fowler contributes a brief sketch of the extent and general conditions of leprosy in China, and Dr. H. C. de Souza-Araujo discusses its incidence in Brazil. Leprosy work in British Guiana is described by Dr. F. G. Rose, and several short therapeutical articles make up the bulk of an interesting issue.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:
EDITOR of the *British Medical Journal, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

WANTED—A HOME.

"X." would be glad to hear of an institution where a recent case of paraplegia would be received for treatment. The patient, a retired medical man (of small means), has had considerable naval and military service.

CHROME ULCERATION.

DR. J. S. GRIFFITHS (Eaglescliffe, Durham) asks for information how to treat chrome sores and the ulceration of the nasal septum which occurs in workers with chromic acid in the manufacture of bichromate of potash. He states that these sores are most persistent, and, although painless, burrow deep down and become septic, rather assuming the appearance of the perforating ulcers which occur in diabetics.

TREATMENT OF MEMBRANOUS COLITIS.

DR. J. CURTIS WEBB (Cheltenham) writes: In reply to the inquiry of "A Country Doctor" (December 29th, 1928, p. 1202), I would like to urge him to try ionization of zinc sulphate by means of enemata, a method which I described in the *Lancet* (April 22nd, 1911). If "A Country Doctor" would care to communicate direct with me I should be very glad to give him all information of a treatment which I and others have found most satisfactory.

INCOME TAX.

Cash Basis.

"J. M." was in a partnership which was dissolved as from May 1st, 1927. He has been assessed for 1927–28 on the amount of the receipts earned prior to May 1st, 1927, which came to hand after that date, and also on the earnings for the eleven months to April, 1928, whether received or not.

*** The assessor is correct in declining to apply the cash basis to the new practice for the period subsequent to the date of dissolution of the partnership, but we are clearly of opinion that his method of dealing with the cash received for prior work is wrong and is unfair to our correspondent. So far as that work is concerned, "J. M.'s" only liability is to bear his share of an assessment on the partnership for the period April 5th to May 1st, 1927. That assessment should be calculated at 25/365ths of what would have been the amount of the assessment on the firm for 1927–28 if the partnership had not been dissolved. We suggest that "J. M." should press for a reply to his letter to the assessor, and in the absence of a proper revision of the assessments should place the facts before the Controller of Inland Revenue, Edinburgh.

LETTERS, NOTES, ETC.

SUDDEN DEATH IN UNRECOGNIZED SCARLET FEVER.

DR. F. STANLEY ROSE (Sunderland) writes: I was called in September, 1928, to see a boy, aged 3½, at a farmhouse, who had been taken suddenly ill with vomiting and diarrhoea. It was stated that he had been quite well up to a few hours previously, except that he complained of thirst. On arrival, within an hour, I found he had died. I could glean no facts which would enable me to formulate a cause of death. Two days later, at the necropsy, I was struck by the pallor of the omentum, stomach, and intestines. The stomach contained some pale yellow, odourless fluid: I thought of poisoning, as at that period of the year children often eat tares and such-like. The gall-bladder was tightly distended with green bile, but the liver seemed normal. Both kidneys were slightly congested; the appendix was eight inches long and trailed over the pelvic brim. The spleen was enormously enlarged, soft, and friable. Remnants of the thymus were prominent. The heart musculature was firm, but the valves showed early endocarditis; there was some excess of fluid in the pericardial sac, and its lining was dull. The right lung was normal, but in the upper lobe of the left lung there was a marked and well-defined infarction on the antero-lateral surface. After completing the examination I was called to see a sister (twin) and found her suffering from scarlet fever: another of the same family later developed it. I am of opinion that the boy must have had scarlet fever and been running about with it on him. The interesting point is the large size of the spleen. These odd cases are always worthy of record. I found that the boy's home was partly a dairy farm, but no worker complained of sickness or otherwise, and the cows were reported healthy.

TREATMENT OF CHRONIC RHEUMATISM IN MALARIAL PATIENTS.

LIEUT.-COLONEL G. H. YOUNGE, R.A.M.C.(ret.), F.R.C.S.I., writes: Relapses of malaria, which occur among returned Anglo-Indians during the cold and damp of winter, are not infrequently complicated by trying forms of muscular rheumatism, affecting chiefly the muscles of the back and lower extremities. A feature of these cases is that quinine frequently loses its efficacy, and in some cases may even aggravate the patient's suffering. Recently in these cases I have been led to try what is to me a new combination; I have found it distinctly more beneficial than preparations of quinine. The prescription is as follows: Sodium salicylate gr. xx, potassium bromide gr. x, tincture of cinnamon ℥j, water to ℥j; three times a day. This combination is especially indicated when insomnia is a feature of the case. The addition of cinnamon is a distinct improvement, since it not only masks the nauseous flavour of the salicylate, but it has a remedial action against the malarial poison. The patients often need a moderate allowance of alcoholic stimulant.

PAINFUL SHOULDER.

DR. F. G. BUSHNELL (Plymouth), with reference to Mr. P. B. Roth's letter on traumatic synovitis of the shoulder-joint, published in our issue of December 22nd, 1928 (p. 1156), writes: I have had a similar personal experience of a painful left shoulder following a heavy fall. I had limitation of movement, pain spontaneous and worse on movement, tender spots on pressure at the insertion of the deltoid and at the outer end of the infraclavicular fossa, and some muscular wasting of the shoulder. The condition was treated as "fibrositis," though in the skiagram a well-known Swiss orthopaedic surgeon pointed out some rather doubtful rarefaction of the cancellous tissue, possibly of traumatic origin. Six months' treatment by massage, movements, radiant heat, etc., gave little or no relief, but all symptoms disappeared during the summer months when I took some sun baths, and the massage and forced movements were omitted. If rest can relieve such a case in two or three weeks, and movements, etc., fail in six months, Mr. Roth's warning is very timely.

THE HISTORY OF CINCHONA.

"B." writes with reference to the article by Mr. C. J. S. Thompson on cinchona (December 29th, 1928, p. 1188): In *Blackwood's Magazine* for May, 1927, there is an article on "The savage as scientist," in which the treatment of general paralysis of the insane by malarial infection, and the cure of the malaria by "bitter herbs," is described. I would like to ask if the "bitter herbs" there mentioned were probably plants containing some of the cinchona bases? If this were so, would it not show an earlier use of the bark as a cure for malaria than that mentioned in the article?

ASTHMA RESEARCH.

IN our reference to the work of the Asthma Research Council on January 5th (p. 29) it should have been mentioned that the clinic in course of establishment at the Hospital for Sick Children, Great Ormond Street, will be under the joint direction of Dr. E. A. Cockayne and Dr. D. N. Nabarro.

CORRIGENDA.

DR. H. MARTIN GREY calls attention to a clerical error in his note on "A Normal Ventriculogram," published in the *Journal* of January 5th (p. 15). The words "of the pupils," in the fourth line of the small print, should be omitted.

WE are asked to state that Dr. Ninian Falkiner was recently appointed visiting gynaecologist to the Royal City of Dublin Hospital and not to the Coombe Hospital, as mentioned in the *Journal* of January 5th (p. 38).

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 50, 51, and 52 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 15.

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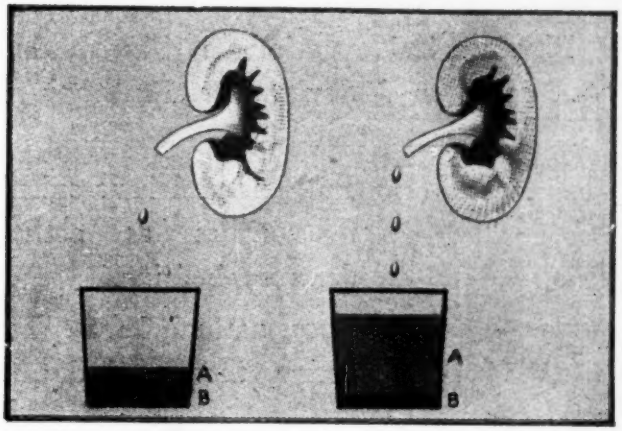

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